USER MANUAL

Digital Hard Disk Recorder

(4/8/16 Channel, MPEG-4)

*** Default system password: 111111**

(for RAMS, Record stop, Menu setup, System off, Auto key lock)

*** Default ID: admin (for RAMS)**

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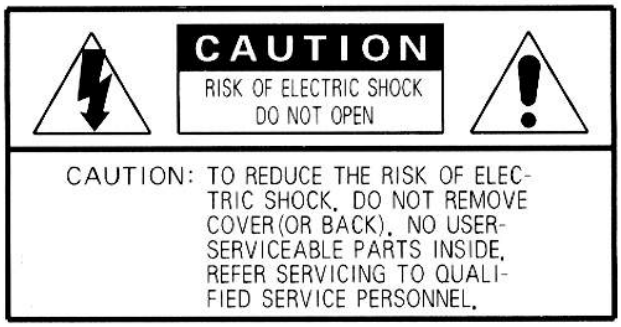
1. SYSTEM OVERVIEWS

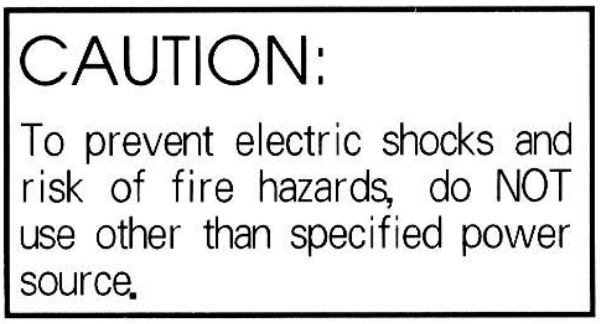
1.1 Safety

. WARNING Please follow instruction to prevent any kind of damage or loss you do not follow this instruction, it might bring severe damage or loss.

The symbol is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the unit.

The symbol is intended to alert the user to the presence of uninsulated "dangerous voltage" within the product's enclosure that may be of sufficient magnitude to constitute a risk of electric shock to persons.





Warning -- This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at its own expense.

Warning – If TIMEKEEPER NVRAM IC that is consist of RTC, SRAM, POWER-FAIL CONTROL CIRCUIT and BATTERY is replaced, the replacement is to be done by a trained technician with the same type of component.

Caution -- Any changes or modifications in construction of this device which are not expressly

approved by the party responsible for compliance could void the user's authority to operate the equipment.

Warranty will be made void if the product is disassembled or manipulated by the user.

Safety Instructions

1) Read these instructions.
2) Keep these instructions.
3) Heed all warnings.
4) Follow all instructions.
5) Do not use this apparatus near water.
6) Clean only with dry cloth.
7) Do not block any ventilation openings.
   Install in accordance with the manufacturer's instructions.
8) Do not install near any heat sources such as radiators,
   heat registers, stoves, or other apparatus (including amplifiers)
   that produce heat.
9) Do not defeat the safety purpose of the polarized or grounding-
   type plug. A polarized plug has two blades with one wider than the other. A grounding type plug has two blades and a third grounding prong. The wide blade or the third prong is provided for your safety. If the provided plug does not fit into your outlet, consult an electrician for replacement of the obsolete outlet.
10) Protect the power cord from being walked on or pinched particularly at plugs, convenience receptacles, and the point where they exit from the apparatus.
11) Only use attachments/accessories specified by the manufacturer.
12) Use only with the cart, stand, tripod, bracket, or table specified by the manufacturer, or sold with the apparatus. When a cart is used, use caution when moving the cart/apparatus combination to avoid injury from tip-over.
13) Unplug this apparatus during lightning storms or when unused for long periods of time.
14) Refer all servicing to qualified service personnel. Servicing is required when the apparatus has been damaged in any way, such as power-supply cord or plug is damaged, liquid has been spilled or objects have fallen into the apparatus, the apparatus has been exposed to rain or moisture, does not operate normally, or has been dropped.

1.2 Components & Option

The following items are included with the 4, 8 & 16 Channel DVR. Please be certain that all items are included as soon as you open the box:

1.2.1 Components

- DVR (CD-RW is installed as a basic equipment)
- Power cable
- DSUB-15 connector(2EA) for PTZ /AUX / ALARM (4ch DVR, 1EA)
- Quick Manual
- Software CD (RAMS, UniPlayer, Quick Installer and Operation Manual)

1.2.2 Options

- Remote Control Unit (two batteries included)
- RS-232 Serial cross cable

1.3 Features & specifications

Features

- 4/8/16 channel Embedded Digital Video Recorder
- MPEG-4 compression
- Multi channel Playback function
- Quad-plex mode for simultaneous recording, playback, backup, and networking
- Live remote viewing, on-the-fly recording, and control over the network
- Dynamic IP support (DHCP & PPPoE)
- Alarm triggered FTP and E-mail alert function
- Motion detection, Video loss, Motion, Sensor, Motion & Sensor, alarm function
- User defined setting for recording frame rate & resolution
- Various backup method support (CD-RW, USB, Network)
- Audio recording available
- Multiple recording modes: Time lapse, video loss alarm, schedule, manual, & continuous recording
- Still image capture and search function
- Intuitive and easy search by calendar
- Convenient search by alarm, time, or date
- Quick and responsive playback & field-by-field viewing with the Jog/Shuttle dial
- Watermarking (Backup)
- PTZ control through RS-485
- Quick & easy setup through RS-232
- Remote controller available (optional)
- User friendly remote control unit
- Dual video modes: Selectable NTSC & PAL
- Rack mountable : 2U
- Free voltage power input (100 - 240VAC, 50Hz/60Hz, 70W)
- Various Video output (CVBS 2 EA out, VGA out, Spot out, S-Video out)

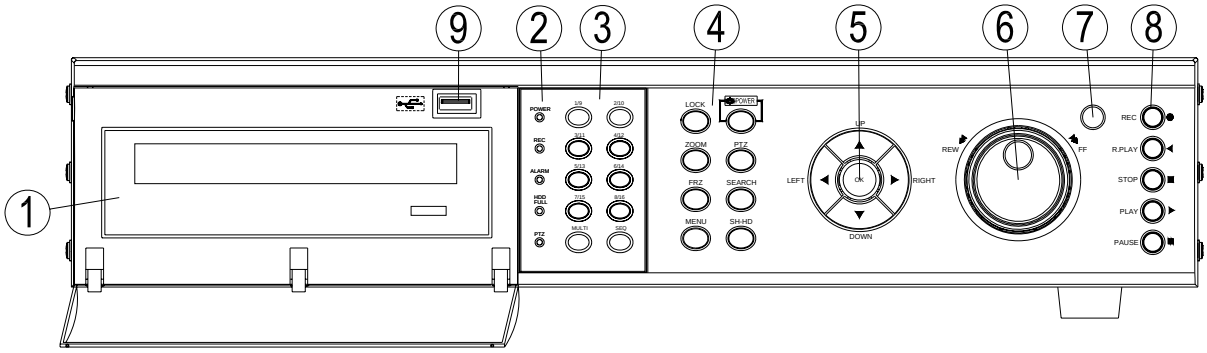
1.3.1 Specifications

Model		4ch DVR	8ch DVR	16ch DVR
Image System		NTSC, PAL selectable		
Multi-tasking		Quadplex		
Video Channel		4CH Composite, 4CH Loop through, BNC	8CH Composite, 8CH Loop through, BNC	16CH Composite, 16CH Loop through(Option), BNC
Video Output		1CH Composite BNC, 1CH S-Video, 1CH VGA(Option)	2CH Composite BNC, 1CH S-Video, 1CH Spot, 1CH VGA	
Video Compression		MPEG-4		
Recording Resolution	MUX	720x240, 360x240 (NTSC) / 720x288, 360x288 (PAL)		
Recording Quality		4 Levels (Normal, Enhanced, Fine, Super Fine)		
Max Display Speed		120 fps (real time)	240 fps (real time)	480 fps (real time)
Max Recording Speed		120 fps (real time)		
Time Laps Recording Interval (fps)		1,2,3,4,5,6,7,8,9,10,15,20,30 (NTSC, 13 Steps) 1,2,3,4,5,6,7,8,9,10,15,20,25 (PAL, 13 Steps)		
Recording Mode		Schedule, Event (Sensor, Motion Detection), Manual, Continuous		
Playback Search		Date/Time, Event (Sensor, Motion Detection)		
Playback Speed		x1, x2, x4, x8, x16, x32, x64, x128, Field by Field (Forward, Backward)		
Slow Motion		x1/4, x1/2 (Forward Only)		
Sensor Input		4 (NO/NC Selectable)	8 (NO/NC Selectable)	16 (NO/NC Selectable)
Alarm Output		1 (NO/NC)		
Aux Control In/Out		2 input / 3 output (Selectable Function Menu) Alarm Reset In, Record Start In, Record ON/OFF In, Alarm Out, Error Out , Record Start Out, Disk Full Out, Record Status Out		
Audio		1CH, Mono		
Network		10Base-T (Static, DHCP, PPPoE, E-mail & FTP)		
Motion Detection		12x12, 8 Level Sensitivity		
Hard Disk		Max. 1 EA	Max. 2 EA	
Backup		USB, CD-RW, Network		
Watermarking		Still Image Backup		
PTZ Control		RS-485		
System Log		Video Loss, Power On/Off, HDD Full, HDD Fail, Menu Called, Reset HDD Format, Reset SW Upgrade, Email Fail, FTP Fail		
Language		Korean, English, Japanese, French, Spanish, German		
S/W Upgrade		Network, USB Memory Stick		
Password Function		Power OFF, MENU, Record OFF, Key Lock		
Digital Zoom		x 2		
Timer		Built-in Real time clock		
Remote Control		Optional		
Power Source		Free Voltage (100 – 240VAC, 50Hz/60Hz, 70W)		
Dimension		433(W) x 385(D) x 88(H)		
Operating Temperature		5℃ ~ 40℃		
Weight		7Kg (net)		

- Design and specifications are subjected to change without notice.

1.4 Name, function & connections

1.4.1 Front view



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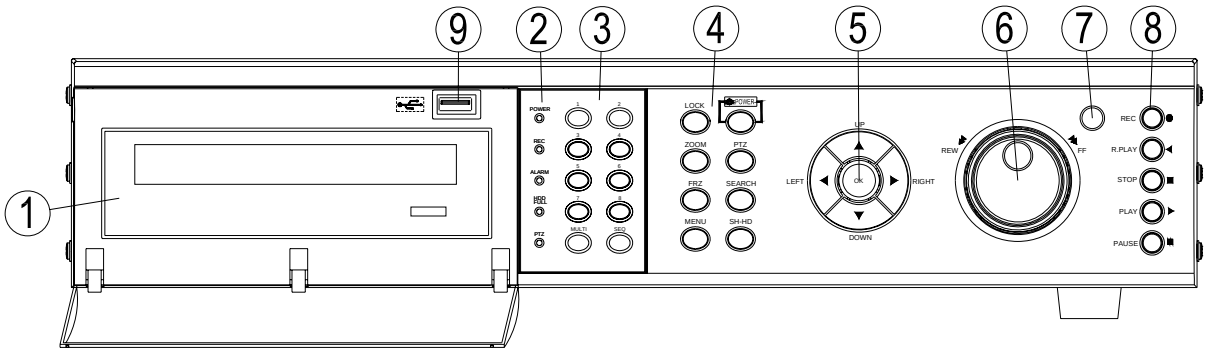

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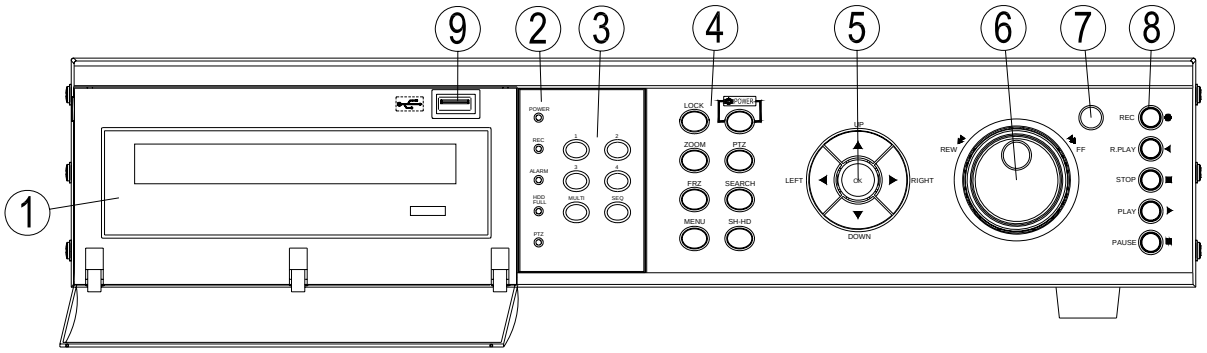


< 4ch DVR >

Description:

1. CD-RW
   - Easy backup by CD-RW is available. The cover of CD-RW shows an excellent design.
2. LED Display
   - POWER : During Standby mode, red light on, during running unit, green light on
   - REC : During recording green light flashes
   - ALARM: Green light (Alarm triggered)
   - HDD FULL: Green light (No more disk space for recording)
   - PTZ: Pan, Tilt, Zoom, Focus status is indicated by Green
3. Numeric button - Live Viewing mode button
   - 16ch DVR : 1/9, 2/10, 3/11, 4/12, 5/13, 6/14, 7/15, 8/16
     - Channel selection for Live Viewing and Playback mode, Password inputting,
     - Channel selection by pushing the button 1 & 9, 2 &10, …
   - 8ch DVR : 1, 2, 3, 4, 5, 6, 7, 8
     - Channel selection for Live Viewing and Playback mode, Password inputting.
   - 4ch DVR : 1,2,3,4 : It can be used for channel & password change.
   - MULTI (16ch DVR) : Selection button for Screen Division for Live Viewing mode

     * Live mode: Selection of Screen Division for Live Viewing mode (4, 8, 9, 16 screen division)
     - In order to go back to previous mode, user is required to push “MULTI” button, after selecting a specific channel.

     * Playback mode : Selection button for Screen Division for playback of recording file. It shows 4,9,16 divided screen in order of precedence. If you select specific one channel and in order to get back to each divided channel, you can just click “MULTI” button.
   - MULTI (8ch DVR)

     * Live mode: Selection button for Screen Division for of Screen Division for Live Viewing mode (4, 6, 8, 9 screen divisions)
     - In order to go back to previous mode, user is required to push “MULTI” button, after selecting a specific channel .
   - Playback mode:

     - In order to go back to previous mode, user is required to push “MULTI” button, after selecting a specific channel.
   - SEQ(16ch DVR)

     : Sequential view under live mode. Viewing of all active video input channels sequentially. If you click “SEQ” button one time, each single channel can be viewed sequentially. If you double click “SEQ” , it views 4, 8, 9, 16 screen divisions.

This button also can be used for all motions area release purpose on motion detection set up menu.

- SEQ(8ch DVR)

: Sequential view under live mode. Viewing of all active video input channels sequentially.
If you click “SEQ” button one time, each single channel can be viewed sequentially.
If you double click “SEQ” , it views 4, 8, 9 screen divisions.
This button also can be used for all motions area release purpose on motion detection set up menu.

- SEQ(4ch DVR)

: Sequential view under live mode. Viewing of all active video input channels sequentially.
If you click “SEQ” button one time, each single channel can be viewed sequentially.
If you double click “SEQ” , it views 4 screen divisions.
This button also can be used for all motions area release purpose on motion detection set up menu.

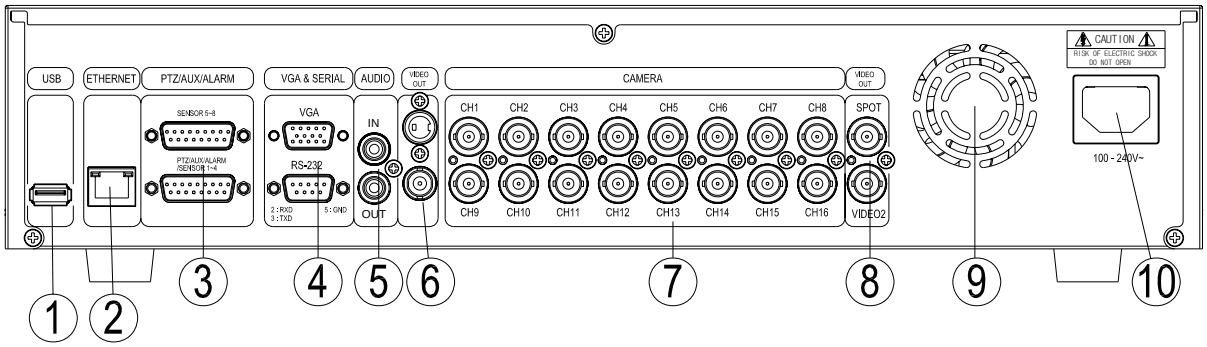
4. Function Button

- POWER: Press this button to power on/off.
  - Soft Power method is adapted. Therefore, If Power button is pressed, user is asked to input Password, before Power off.
- LOCK: Press this button to lock/unlock the buttons of DVR, in order to prevent the use by Unapproved user.
  - If the “LOCK” button is pressed, DVR is locked, and it’s unlocked by inputting correct password
- ZOOM: Zoom In/Out on the images during Live Viewing.
- FRZ : Freeze.
  - Press button once to freeze the frame at live mode. Press again to return.
  - To take a still image capture at playback mode.
  - Exchange of video input type : Press power button with “FRZ” button from NTSC to PAL or PAL to NTSC.
- MISC/SH: Miscellaneous functions or Shuttle Hold.
  - MISC: To substitute for the buttons that are placed on the remote control but that are not placed on the keypad (NET, OSD, Audio Mute, HDD, LOG).
    (If the button is pressed, windows appear, and user can select lower menu one by one)
  - SH: Press button while using the Shuttle to hold the speed.
- SEARCH : Press once to open the menu to search for recorded files.
- PTZ: Pan/Tilt/Zoom. Press once to access the Pan/Tilt/Zoom/Focus control mode. Press again to exit.

- MENU: Press button to access Main Menu. Press again to return.

5. Direction/select button
   - UP: Used to move the cursor up; change possible values in the setup menu; under PTZ control sub menu, used to move camera; or used to adjust focus.
   - DOWN: Used to move the cursor up; change possible values in the setup menu; under PTZ control sub menu, used to move camera; or used to adjust focus.
   - LEFT: Used to change possible values in the setup menu. Under PTZ control menu, used to move the camera left or used to do Zoom Out; At playback mode, used to decrease playback speed.
   - RIGHT: Used to change possible values in the setup menu. Under PTZ control menu, used to move the camera left or used to do Zoom In; At playback mode, used to increase playback speed.
   - OK: Used as a selection key. Under PTZ control menu, used to be interchanged P/T mode with Z/F mode
6. Jog/Shuttle
   - Shuttle: Multi-speed forward/reverse playback. Under Network Setup sub menu, used to input parameters fast.
   - Jog: Frame by frame search.
7. IR receiver
   - Remote control signal receiver
8. Playback
   - RECORD: Press once to begin recording all active channels. Press again to end recording.
   - R-PLAY: Reverse Playback. Press to begin reverse playback. Under PTZ control menu, used to decrease the speed of Pan, Tilt, Zoom, Focus.
   - STOP: Stop playback.
   - PLAY: Access to playback.
     - Playback button will activate assigned starting position and Channel at playback setup of menu.
     - At pause mode, it will release pause mode.
     - Under PTZ control menu, used to increase the speed of Pan, Tilt, Zoom, Focus.
9. USB connector in the front panel
   - This connector is for USB Memory stick to back up the image

1.4.2 Rear panel view



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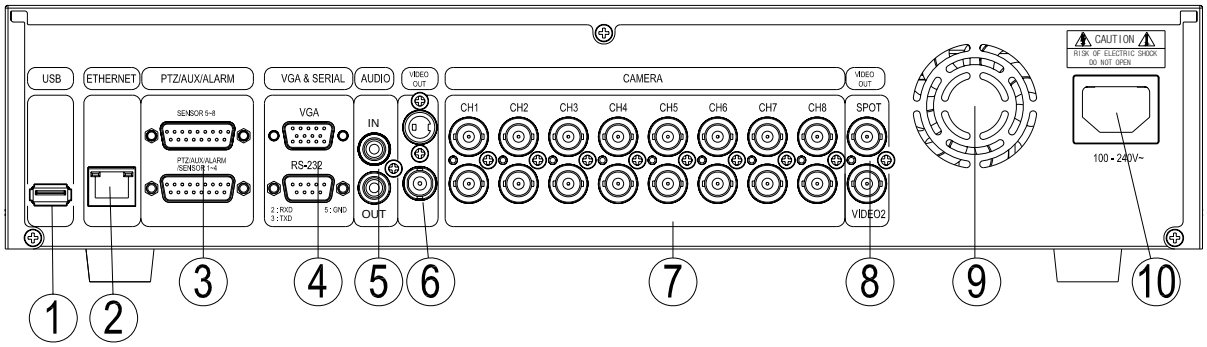
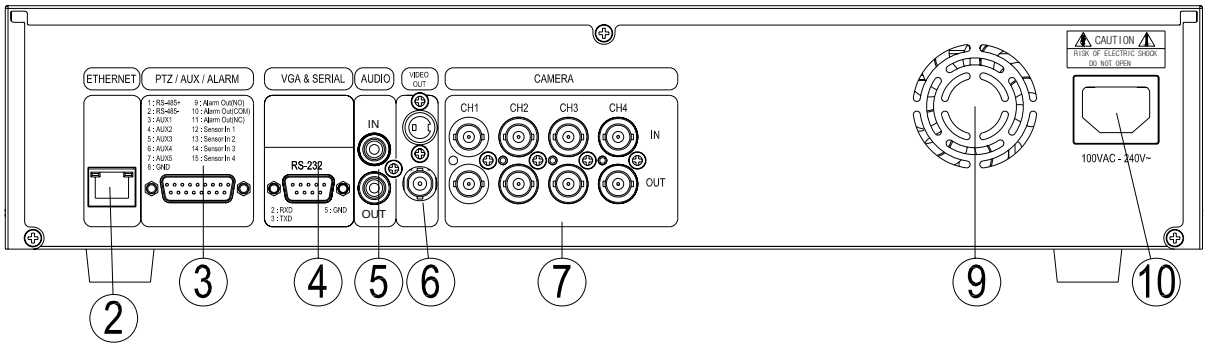


< 8ch DVR >

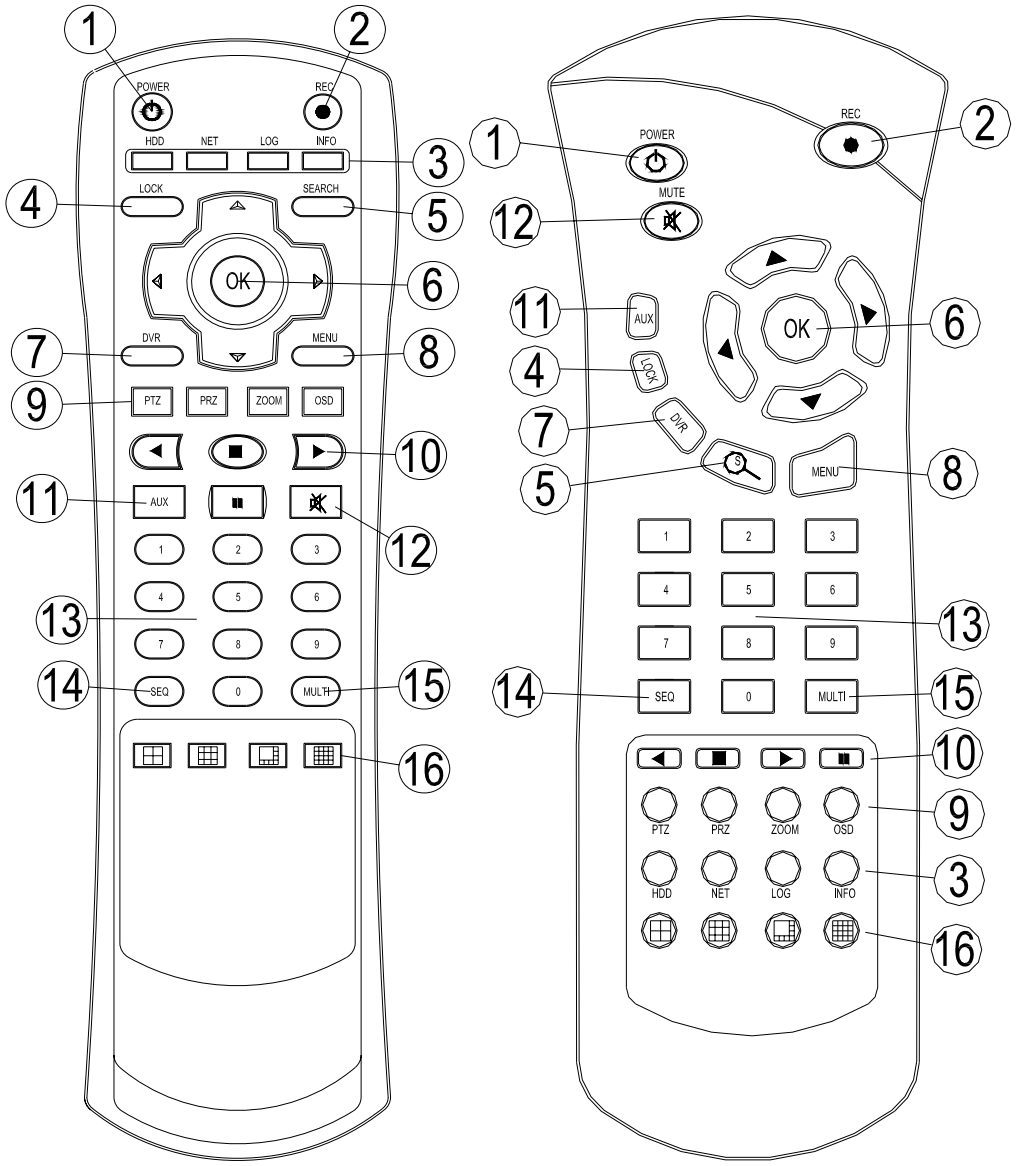


< 4ch DVR >

Description:

1. USB
   - Connect USB flash drives for backing up stored video files (8/16ch DVR only)
2. ETHERNET
   - Network terminal for 10Base-T (RJ-45)
3. PTZ/AUX/ALARM
   - Terminal for PTZ, sensor, alarm, and AUX IN/OUT (DB-15 Male Connector) (4ch DVR has one only.)
4. VGA and SERIAL
   - VGA : Terminal for VGA video output (DB-15 Male Connector, 4ch DVR has an option on this)
   - Serial terminal for RS-232C (PC) for console or quick installation (DB-9 Male Connector)
5. AUDIO
   - IN: Audio line input
   - OUT: Audio line output
6. VIDEO OUT
   - Terminals for composite video and s-video to connect with monitor
7. CAMERA
   - 16ch DVR: 16 Inputs (1~16 ch) : In order to use Loop through, please refer to Article 3.1.7.
   - 8ch DVR: 8 Inputs (1 ~ 8 ch) : With 8 loop through, the video of each channel can be out.
   - 4ch DVR: 4 Inputs(1~ 4 ch) : One port which is below to Video output port is loop through. It can transmit each channel's video inputs to other DVR.
8. VIDEO OUT (SPOT and VIDEO 2), 8/16ch DVR only.
   - SPOT : User can use this connector for a specific Spot Monitor.
   - VIDEO 2 : With the Extra Output, user can connector with other monitor. (Same video image as Video 1)
9. FAN
   - Heat protection fan to reduce heat in the unit.
10. POWER INPUT
    - Power cord terminal (Free voltage, 100 - 240VAC, 50Hz/60Hz)

1.4.3 Remote controller function



① POWER : button for power on/off. (DVR should be standby or on working status)

② RECORD : button for forced recording (If it's pressed again, recording stops)

③ INFO BUTTON GROUP : button group for HDD, NET, LOG, INFO.

If each button is pressed, the relative information shows and press Menu button for exit

④ LOCK : Remote control lock button. Same function as Lock button in the front panel.
To unlock, press any button and input password.

⑤ SEARCH : button to search data in HDD. Press the button to enter, and repress for exit

⑥ Up/down, Right/left & OK button

Status	OK	Up/down	Right/left
Menu	Selection, sub menu	Menu move	x
Sub Menu	Selection	Move Menu	Adjust value
Play	x	Channel Coverting	Low speed and playback speed

⑦ DVR : Reserved.

⑧ MENU : Button for menu. Various sub menu can be selected

- To exit, press again the button

⑨ Functional Key Group : A group for “PTZ”, “FRZ”, “ZOOM” “OSD” from the left. Remote control, Rock button. Same function as Lock button in the front panel.

⑩ Play Group: Playback, Start, Stop, Pause, R.Play. All buttons are the same as front panel.

⑪ AUX : Reserved

⑫ MUTE : - Press one time : Off audio output .

- Press 2nd time : on audio output

⑬ Number Keypad : button for specific channel you want to see

Ex) If you put the number “7” and “OK” button , it will show channel number 7.

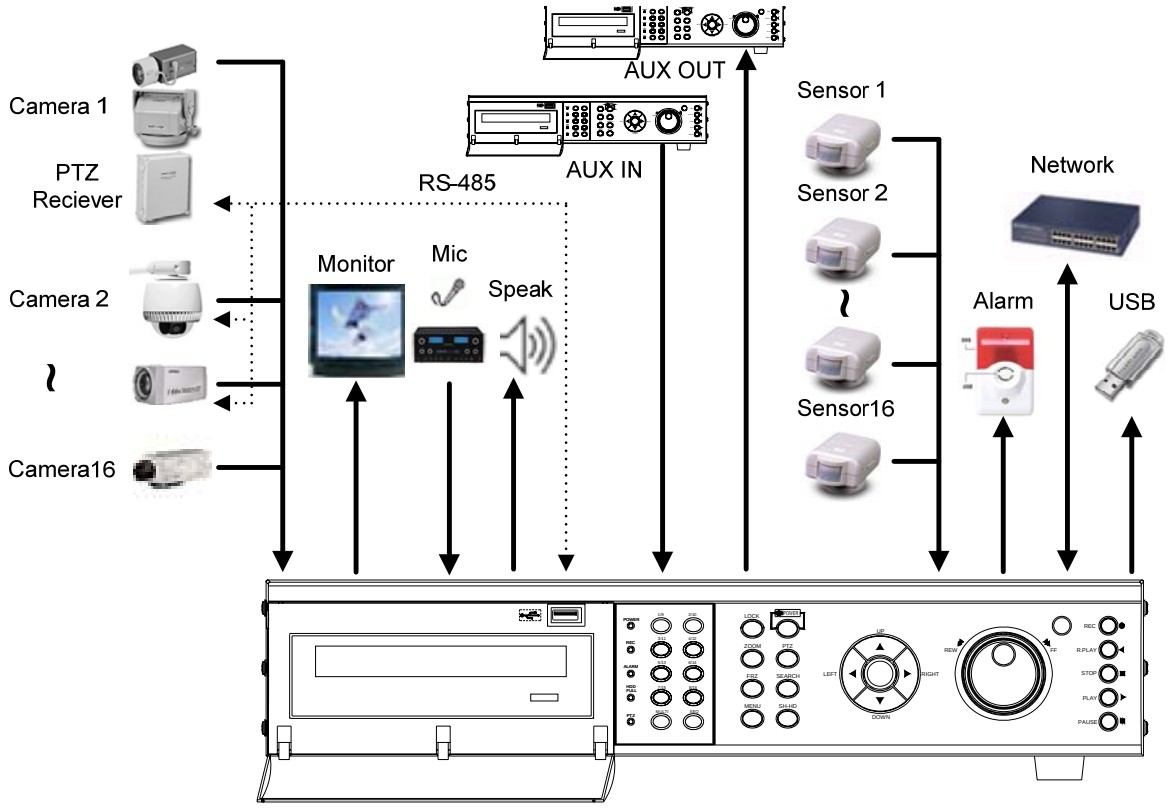
⑭ SEQ : The same function as on the DVR front panel.

⑮ MULTI : The same function as on the DVR front panel.

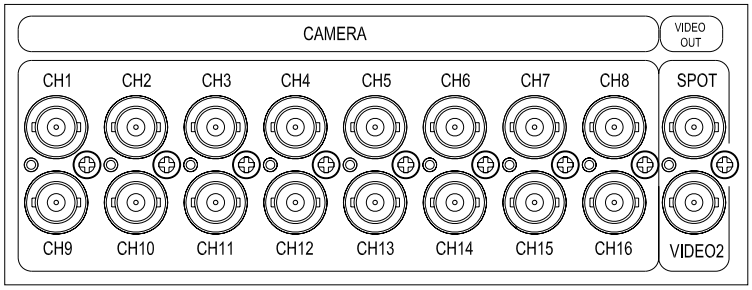
⑯ Screen division Group : Similar with “MULTI” Key but these keys play nothing , so makes it possible to move back related divided screen . From the left it provides , 4 divided screen, 8 divided screen , 9 divided screen and 16 divided screen.

1.5 INSTALLATION

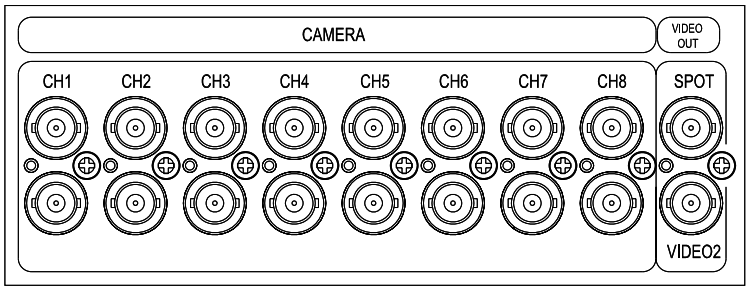
1.5.1 Installation and connection



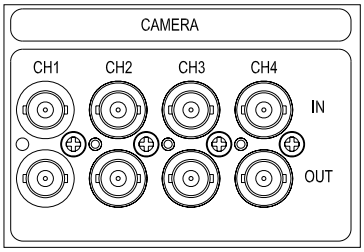
1.5.1.1 Camera



16 Channel(**16ch DVR**): The unit comes with 16 video IN for up to 16 cameras connection. In order to use Loop-Through, please enter into DVR setting menu and set up Termination (through Y-cable or T terminal).

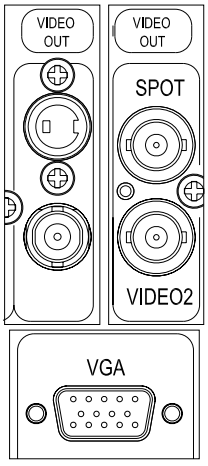


8 Channel(8ch DVR) : 8 cameras can be connected.
The below video connectors are for Loop through.



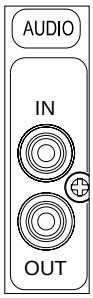
4Channel(4ch DVR) : 4cameras can be connected.
The below video connectors are for Loop through

1.5.1.2 Video Out



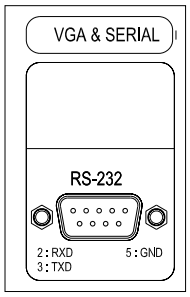
8/16ch DVR has two composite video outputs, one S-video output, one VGA output. Also one spot output allows users to select specific channel for special monitoring. Spot monitor function is added in order to monitor more important site or channel
4ch DVR has one composite video output, one S-video output. VGA output is option.

1.5.1.3 Audio



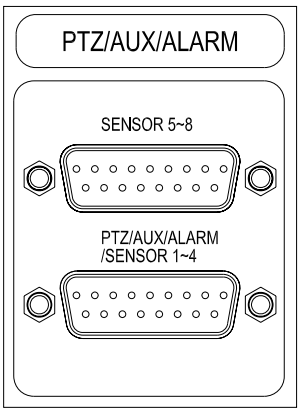
Use IN for a Line input and OUT for speaker output.

1.5.1.4 RS-232



Use this connector to connect RS-232 cable to the serial port on your PC to control the DVR or to perform Quick Installation.

1.5.1.5 PTZ/AUX/ALARM



1.5.1.5.1 RS-485+, RS-485-

DVR uses RS-485 protocol to control PTZ Receiver, Speed Dome, and Auto-focus camera. Be sure to match the polarity.

1.5.1.5.2 AUX 1~5

AUX Port consists of 2 input ports (AUX 1,2) and 3 output ports (AUX 3, 4, 5) and the function of each port is selectable according to user's purpose, user's access to external DVR, or controllers using the supplied DB-15 connector.

1.5.1.5.3 Alarm Out (NO, COM, NC)

The Alarm output is activated using a relay contact point when an alarm event occurs for the duration of the alarm event.

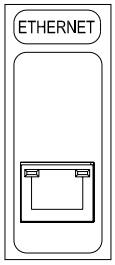
Select from Normal Open Relay or Normal Close Relay.

N.O. (Normal Open) is disconnected from COM during normal status and connected to COM during alarm event. N.C. (Normal Close) is connected from COM during normal status and disconnected to COM during alarm event.

1.5.1.5.4 Sensor (16ch DVR :1~16, 8ch DVR:1~8, 4ch DVR:1~4)

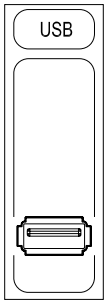
Users can connect up to four N.O./N.C. type sensors(4 for 4ch DVR, 8 for 8ch DVR, 16 for 16ch DVR) and configure them within Main Menu, Sensor Setting.

1.5.1.6 Network



Support 10 base-T Ethernet, and connect Ethernet cable.

1.5.1.7 USB flash memory



Perform backup of recorded video files from DVR system to USB flash memory manually.

2. Basic operation procedures

2.1 Power On/Off

2.1.1 Power ON

Using either the keypad or the remote control, press the “POWER” button. (Note: In case of power outage or rare instance of system failure, the DVR will reboot automatically)

The Power LED light will turn from red to green when it has turned on properly.

In a standby mode, the LED is red.

2.1.2 Power OFF

In order to shutdown the system, you must type in the password. The default password for shutdown is “111111”.

2.2 Date & time setting

Set the date and time for the DVR.

(**System Setup in Main Menu → Time/Date**)

2.3 Change of live video channel in multi channel screen

Live channel can be changed in Multi channel screen of DVR.

This function is available for 4 ch / 6 ch / 8 ch / 9 ch of multi channel screen. It’s not available for 16 ch. If OK key is pressed in the multi channel screen, box appears. Buttons are used to select the channel.

And up/down key is used to move the channel.

After setting, if menu key is pressed, user can go back to Live picture.

2.4 Password setting procedure

Change your password for the DVR. The password must be a 6-digit combined number consisting of numbers 1 ~ 8.

(**System Setup in Main Menu → System Password**)

2.5 Network setting

There are three types of network setting for the DVR: STATIC, DHCP, or PPPoE. Please set the network type. (**Network Setup in Main Menu**)

2.6 Recording

Select recording related parameters in the Record Setup in the main menu.

2.6.1 Recording types

Enter in Recording setup of menu. For resolution, select either 720*240 (NTSC), 360*240 (NTSC) or 720*288 (PAL), 360*288 (PAL). Audio channel is synchronized with the selected video signal. Select Video input quality (Enhance/ Normal/ Fine/ Super fine), Frame rate (120 fps(NTSC) / 100 fps (PAL)), and recording mode. 4, 8 or 16 channels can be selected at the same time.

2.6.2 Recording modes

Recording mode are made up of MANUAL, CONTINUOUS, MOTION, SENSOR, MOTION+SENSOR, and SCHEDULE mode. A red record light ( ) on the top LEFT corner of each channel will indicate DVR recording.

In the MANUAL mode, the DVR starts to record on/off whenever the RECORD button is pressed.

Refer to the article 3.2.6 for details of Record mode.

2.7 Playback

2.7.1 Press the Play button

When you push " Play" button, playback will begun according to channel, playback beginning point and audio of playback setting mode.

2.7.2 Audio Play

You will hear audio when video files containing audio is selected for playback.

2.8 Search

2.8.1 Search mode

The DVR has 3 types of search modes:

- Search by Calendar: For user's convenience, we provide calendar type search mode.
- Search by Event: Search the recording file according to sensor, motion, schedule.
- Still Image Search: Displays recorded still images.

2.8.2 Search method

- Calendar Search

  When you press Search, select from three options listed:

  Among these three options, select calendar mode.(Click “OK” button)

  Then “Year, Month, Date” will be shown on the screen , when you click each one, hour and minute column will be shown accordingly. Then you can view all selected recorded file at the same time.

- Event Search

  When you press Search, select Event Search from three options listed. Select Date and Time and Channel and you can find recording file list. Please click” OK” button to playback.

2.9 Backup

The DVR has various types of backup methods:

2.9.1 CD-RW

- After inserting CD-ROM into CR-RW Drive, push Menu button & go to Backup menu, and back up the moving picture of HDD by CD-RW for the selected time.
- In the backup menu, select backup time → start backup, and backup for capacity of CD-RW.
- The backed-up files can be play-backed by our own provided Uniplayer or Simple Player S/W program.

2.9.2 USB flash memory Stick

- User can backup manually from internal HDD to USB memory stick by connecting one to USB port equipped at rear side of DVR
- Connect USB Memory Stick into USB port → Input the start of backup date and time at backup menu → Input the end of backup date and time at backup menu → Select the channel → Select event condition.
- Video data & still image are available in the USB back up.
- Our own Simple Player included during back up, it is easy to playback at other P.C
- User can replay backup files at proprietary UniPlayer client program.

2.9.3 Network

- from the remote site it will be backed up to user’s P.C

2.10 Client Program

2.10.1 RAMS (Remote Access & Monitoring System)

- Remotely access, monitor, and operate the DVR for real-time live viewing, playback, backup, on-the-fly recording, and control over the LAN/WAN
- Upgrade the S/W(Kernel, Ramdisk) of DVR
- Install the RAMS program as referred to in section 4.2 of Operation Manual.
- Execute RAMS program and register selected DVR's IP address & Port number from the DVR list by clicking following button .
- After selecting the target DVR, enter "**admin**" for ID and **"111111"** for default password. This will enable you to access the DVR.

2.10.2 UniPlayer

- A viewer program with functions for recording, capturing, & backing up files.

2.10.3 Quick Installer

- To setup configuration template for quick & easy, multiple unit setup using RS-232 or network
- To upload/download DVR menu setting from/to DVR as file form using pc.

3 Main Menu screen

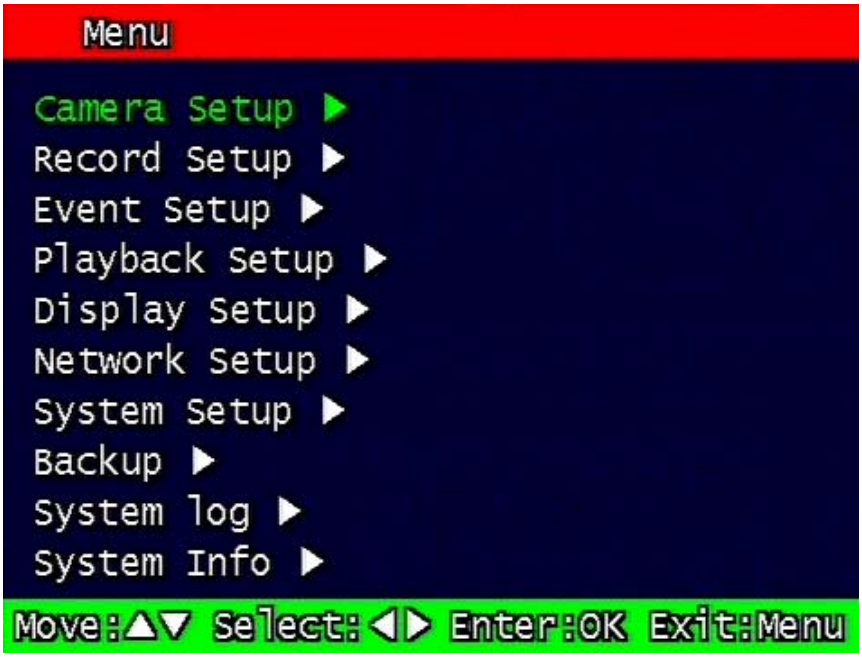


Figure. 3-1 Main Setup screen

3.1 Camera Setup menu

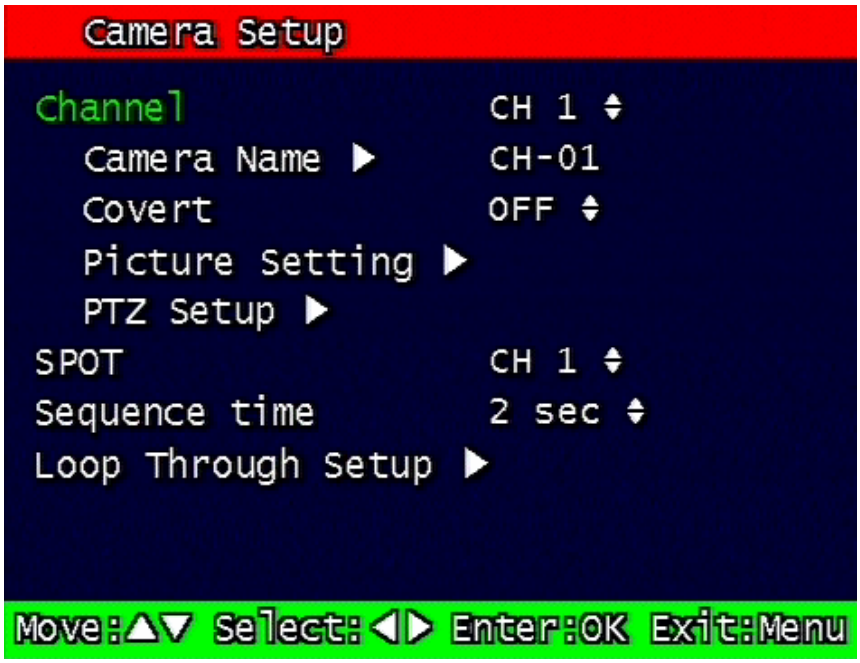


Figure. 3-2 Camera setup screen

3.1.1 Channel

A user can select targeted camera. After setting this, live viewing picture will be changed to selected channel automatically.

3.1.2 Camera Name

Figure. 3-3 Camera name edit screen

User can edit camera name indicated button part of each channel. as explained paragraph 3.1.1. According to above picture 3-3, after keyboard type's window which is enterable or editable as displayed, user can set channel name with entering new letters and it is available 12 letters at maximum. Selected name at this paragraph will be displayed at the left side of top portion on window.

"CAPS" button: user can shift a letter to capital one and/or inversion.

"◀—" button: user can delete miss-entered characters .

"OK" button: entered name will be applied after that and revert to previous menu.

"Cancel" button, entered name will be discharged and maintain the present name & reverted to prior menu.

Key	Explanation
Direction Key	Move the button
OK	Click selected button
0~9 Figures	Input Figures
SEQ	'.' Input
MULTI	Capital letter & Small letter(CAPS)
PLAY(▶)	Input Space
R.PLAY(◀)	Input back space
MENU	Move to "OK" Button

Meaning of Key

3.1.3 Camera hide

User can make the live screen appear or not by channel with this function.

If user sets up "ON" in this function, the live screen of the selected channel does not appear.

In case of recording, the recording continues, although screen does not appear.

3.1.4 Picture Setting

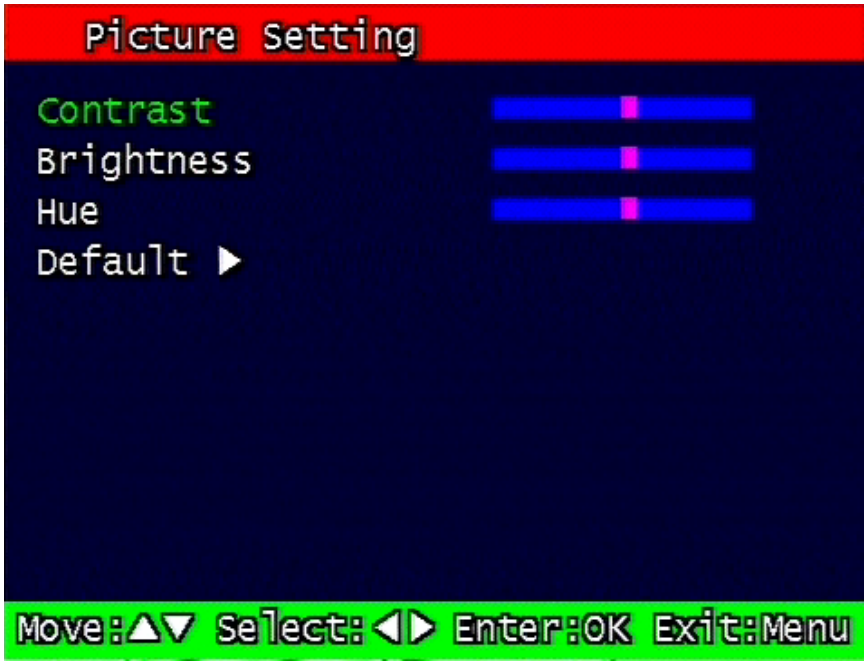


Figure. 3-4 4 Picture setting screen

3.1.4.1 Contrast, Brightness, Hue,

Contrast, Brightness, Hue will be managed & each parameter has 16 level steps adjustable.

3.1.4.2 Default

Users can restore the factory default setting of Contrast, Brightness & Hue.

Confirmation box on picture setting default will appear after entering default. User can restore the factory default setting after entering 'YES' key button.

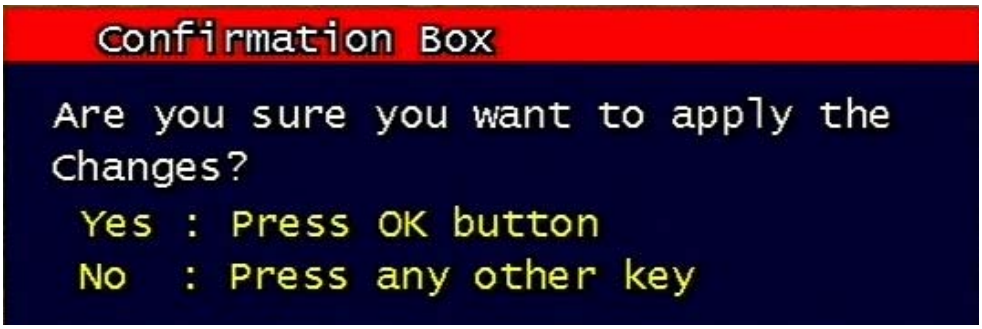


Figure. 3-5 Confirmation box on Picture Setting Default

3.1.5 PTZ setup

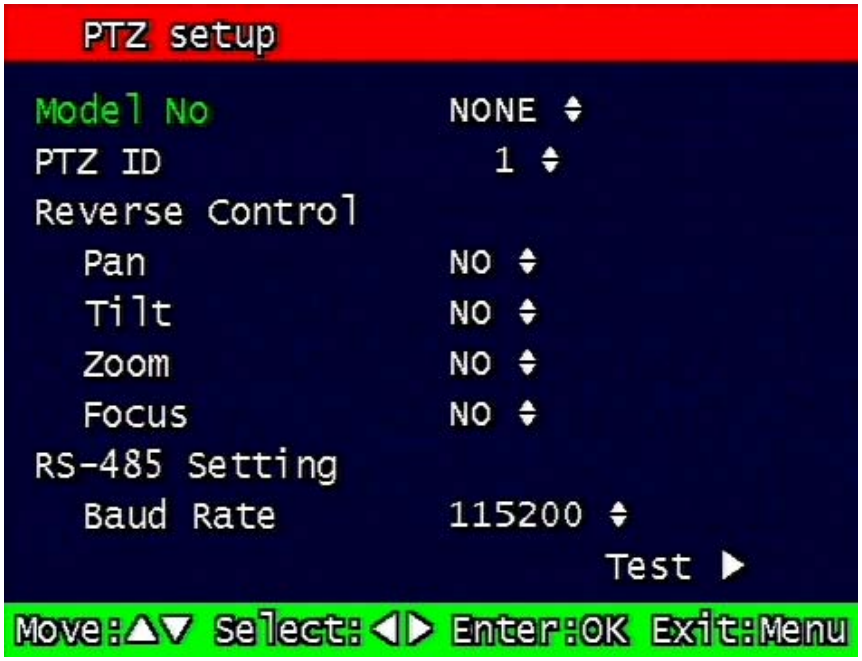


Figure. 3-6 PTZ setup screen

It sets PTZ protocol of targeted channel in the Camera Setup. (Please refer to paragraph 3.1.1 for channel selection)

3.1.5.1 Model No

Select the PTZ model or choose “NONE”.

3.1.5.2 PTZ ID

Set the PTZ ID: 0 ~ 255

The PTZ ID must match the ID number that has been set by the PTZ Controller. Please verify the ID on the Controller first before setting the PTZ ID.

3.1.5.3 Reverse Control

Without any further changing of cable connection, user can control PTZ controller by changing reverse direction of PTZ. Each PAN, TILT, ZOOM, FOCUS will be selectable to reverse direction and each parameter will be selectable ON /OFF.

3.1.5.4 RS-485 Setting

Choose from the following to set PTZ RS-485 baud rate: 2400, 4800, 9600, 19200, 38400, 57600, 115200 bps.

3.1.5.5 TEST

Users can test the PTZ control after setting the parameters. After clicking the TEST button, PTZ control will be available and tested by up/down key. Pan/tilt and Zoom/Focus mode will be controlled after entering OK key button.

PTZ control speed will be controlled by PLAY button for higher speed or by R.PLAY button for precision control

Users can access prior menu with PTZ key entering after finishing test.

3.1.5.6 Additional PTZ Menus

Users can access additional PTZ menu after pressing Menu button in the PTZ mode.

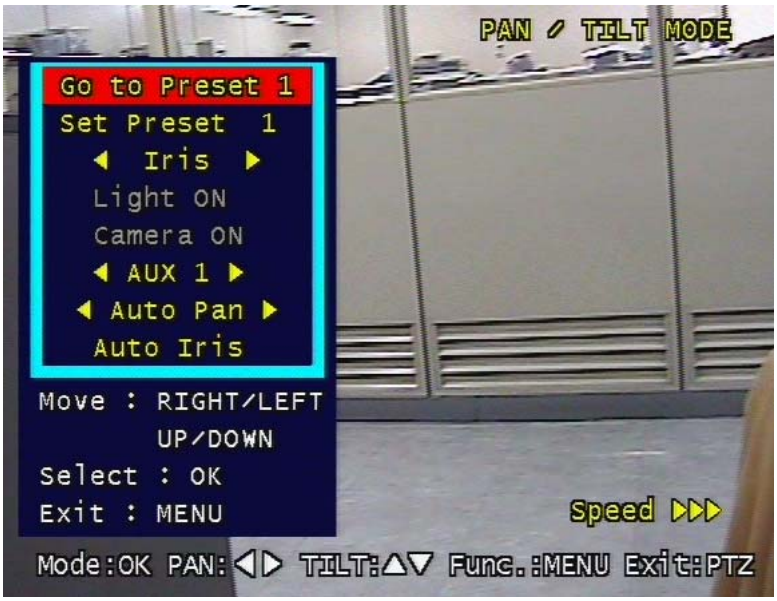


Figure. 3-7 Additional PTZ Menu

- Go to Preset : To move the Pan/Tilt drive to the position preset in Set Preset mode. Preset numbers are selected by Left/Right buttons and the Pan/Tilt drive moves to the preset position after pressing OK button.
- Set Preset : To preset the position of the Pan/Tilt drive. Users can preset 1-99 positions selected by Left/Right buttons and save the preset by pressing OK button.
- Iris : To open/close the camera Iris by Left/Right buttons.
- Light : To turn on/off the camera lighting selected by Left/Right and OK buttons.
- Camera : To turn on/off the camera itself selected by Left/Right and OK buttons.
- Aux : To turn on/off the AUX (six) connected to the camera. On/off are selected by Left/Right and OK buttons.
- Auto Pan : To automatically pan the camera. Pan speed are selected by Left/Right and OK buttons.
- Auto Iris : To automatically Iris the camera.

3.1.6 Spot

It is a spot monitor output channel and it designates specific channel user want to see.

Ref.1.4.2.

3.1.7 Sequence Time

It decides the viewing time of each channel during sequence mode at live mode.

2, 4, 5, 8, 10, 15, 30 sec are all selectable.

3.1.8 Loop Through Setup

Set up Loop Through function. Set up is available with 75 or high each channel.

3.2 Record Setup menu

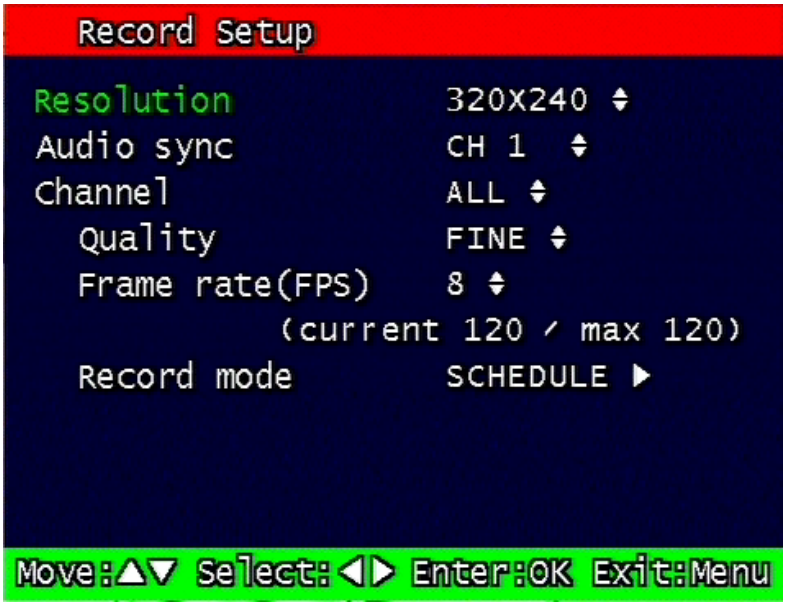


Figure. 3-8 Record setup screen

3.2.1 Resolution

Resolution for NTSC is “360 x 240” or “720 x 240”. PAL is “360 x 288” or “720 x 288” selectable and selected resolution will be applicable to all channels simultaneously.

3.2.2 Audio Sync

As audio input port is one channel available, user should synchronize audio signal with targeted video signal. With synchronized channel will record audio as well as video. But others will only record video input signal only.

3.2.3 Channel number

Quality, frame rate, record conditions will be selected per channel. So users can choose targeted channel. All means all of channels.

3.2.4 Quality

Recording quality of each channel will be selectable & Normal, Enhanced, Fine, Super Fine 4 steps are available now.

3.2.5 Frame rate

User select channel’s recording frame rate and none (no recording), 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 15, 20, 30(25) fps will be available. The total for all the cannels is max 120 fps(100 fps)

But, with 720 x 240 (NTSC), 720x288 (PAL) resolution, user should not set to exceed 60(NTSC), 50(PAL) frame per second with accumulated total channel recording.

3.2.6 Record mode

User will choose recording mode channel by channel and selectable parameters and meaning are below.

- Manual: Manual recording function that starts record and/or stop recording manually by pushing REC key on remote controller or on front key.
- Continuous: Continuous recording mode that starts to recording automatically after turning on the systems.
- Motion: Start to record under motion detection. Under Motion, it starts pre-alarm recording around 2 or 3 second and maintains it until no of motion event. Post-alarm recording will be controlled at Post alarm recording time on Event Setup Menu. (Refer to paragraph 3.3.4)
- Sensor: Start to record under sensor input. As same as motion mode, it starts pre alarm recording around 2 or 3 second and maintain it until no of sensor input. Post-alarm recording will be controlled at Post alarm recording time on Event Setup Menu. (Refer to paragraph 3.3.4)
- Motion + Sensor: Start to recording under motion detection or Sensor occurrence. The detailed will be referred to previous motion detection & sensor occurrence.
- Schedule: This mode supply user defined time and date schedule recording in advance detailed recording schedule will be referred to paragraph 3.2.7 record schedule.

3.2.7 Record Schedule Setup

Figure. 3-9 Recording schedule setting screen

User can select to set recording schedule targeted date, time based week & 24Hours.

Move the cursor to the desired position of time by pressing up/down key and set the recording mode at the desired position of time by pressing the OK button with referring to the Help Message per Record Mode on the right position. After the setup, store the set schedule and exit to the top menu by pressing the Menu button.

3.3 Event Setup Menu

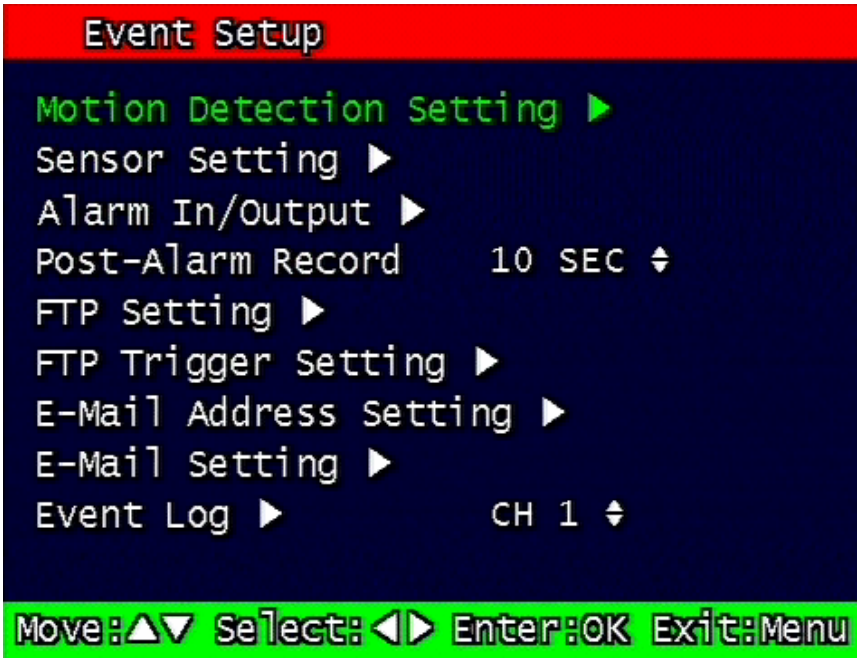


Figure. 3-10 Event Setup screen

3.3.1 Motion Detection Setting

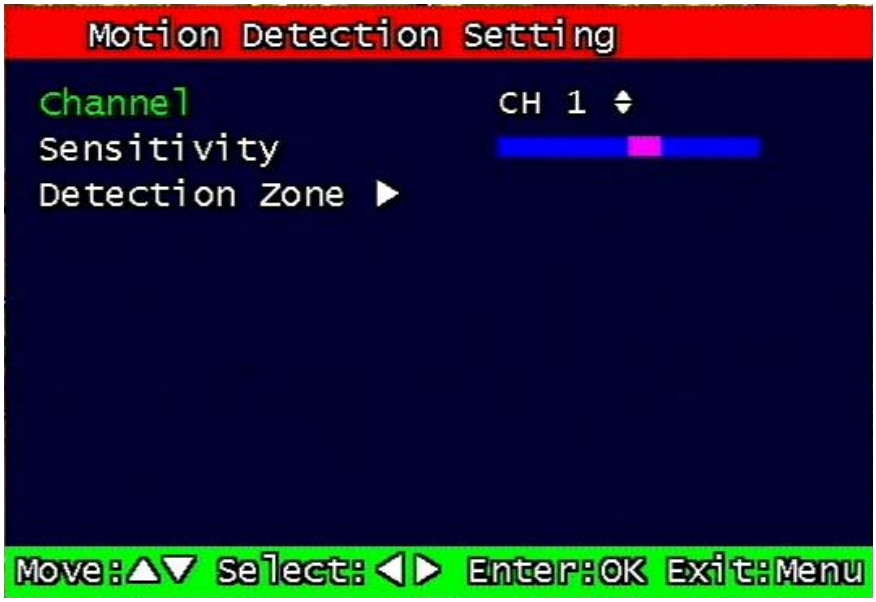


Figure. 3-11 Motion Detecting Setup screen

Sets up the motion detecting area and sensitivity.

3.3.1.1 Channel

Sets up the motion detecting area and sensitivity for each channel.

3.3.1.2 Sensitivity

Sets up the motion detecting sensitivity. The lower the sensitivity gets the closer to the left the red bar gets.

3.3.1.3 Detection Zone

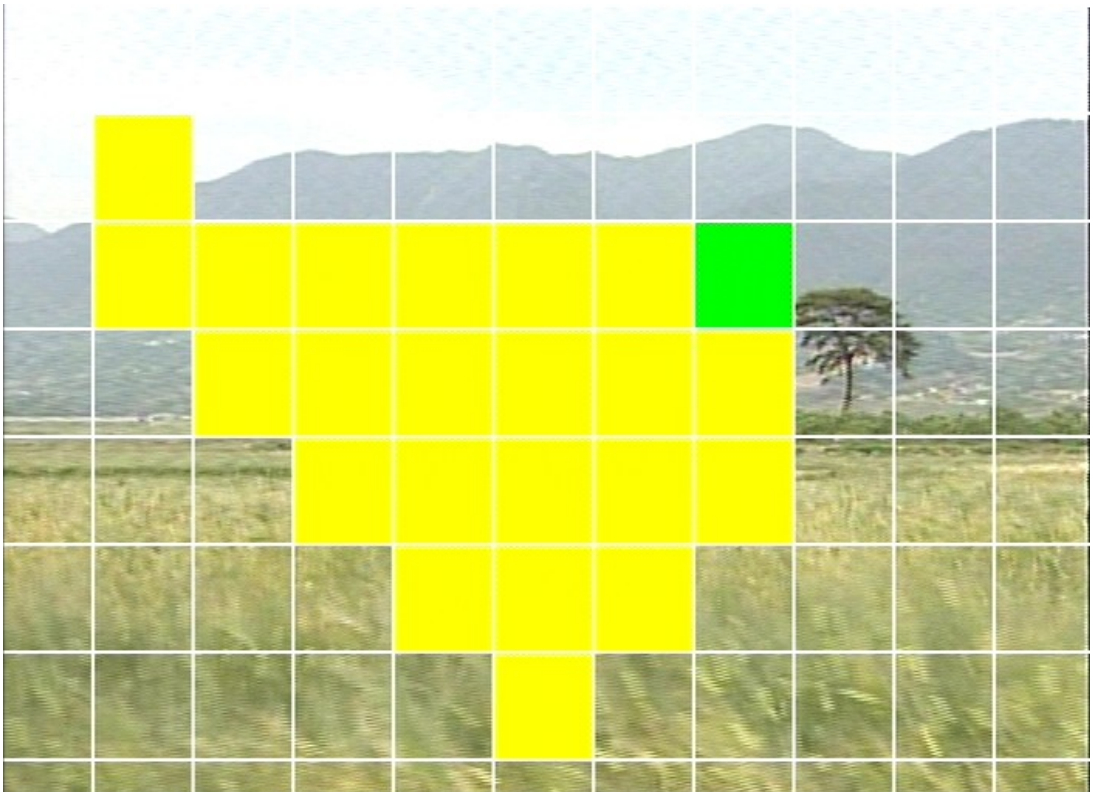


Figure. 3-12 Motion Detecting Area Setup screen

Selects the motion detecting area. The sky blue square implies the current cursor and the yellow square implies the area that was already selected as the motion detecting area.

When the cursor positions on the area that was selected as the motion detecting area, it turns green.

Full screen shall be as the motion detecting areas after entering “MULTI” button. The reverse key button is “SEQ” erasing motion detecting area.

3.3.2 Sensor Setting

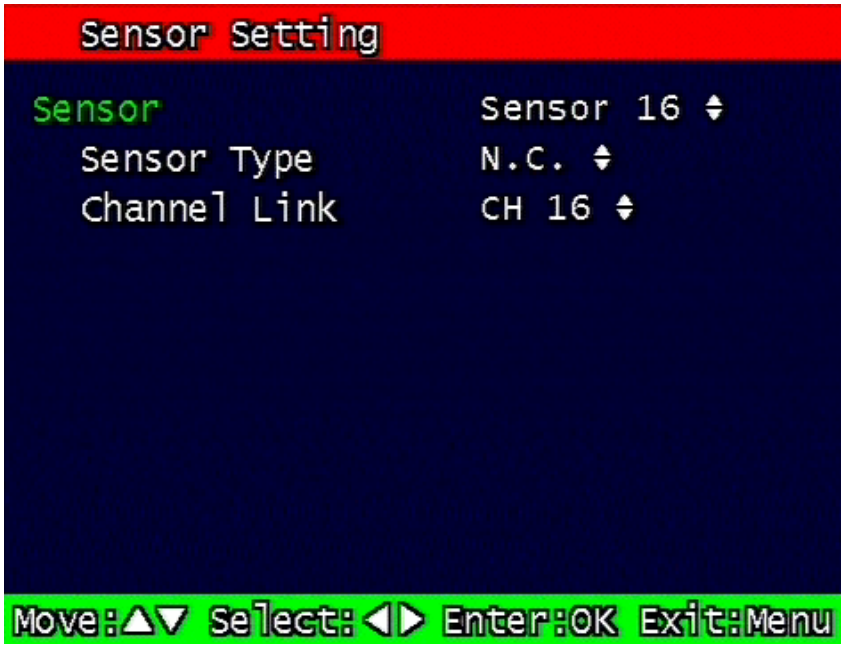


Figure. 3-13 Sensor Setting screen

3.3.2.1 Sensor Type

N.O.: Normal Open. Operation mode for the installed sensor's contact point is usually open in normal condition and changed from open to close at sensor's detect event.

N.C.: Normal Close. Operation mode for the installed sensor's contact point is usually close in normal condition and changed from close to open at sensor's detect event.

3.3.2.2 Channel Link

Assign sensors to designated Camera Channels.

3.3.3 Alarm input/ Output

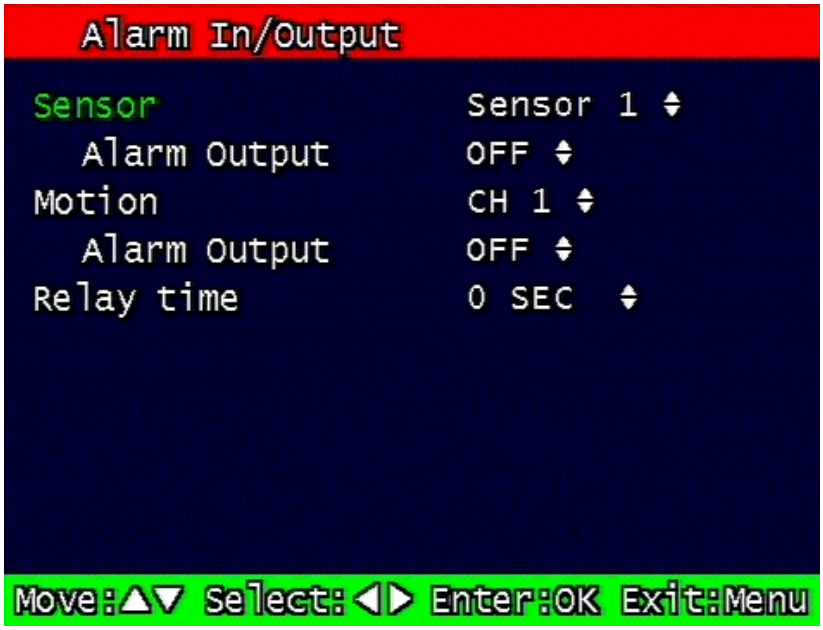


Figure. 3-14 Alarm Output Setting

3.3.3.1 Sensor

Configure the alarm out on/off activated by the sensor.

3.3.3.2 Motion

Configure the alarm out on/off triggered by the motion detection.

3.3.3.3 Relay Time

Configure the alarm duration time. It can be set up from 0 second to 60 seconds in the unit of 5 seconds.

3.3.4 Post Alarm Record Time

Configure the recording continuation time after starting an event recording. It can be set up from 10 seconds to 60 seconds in the unit of 10 seconds.

3.3.5 FTP Setting

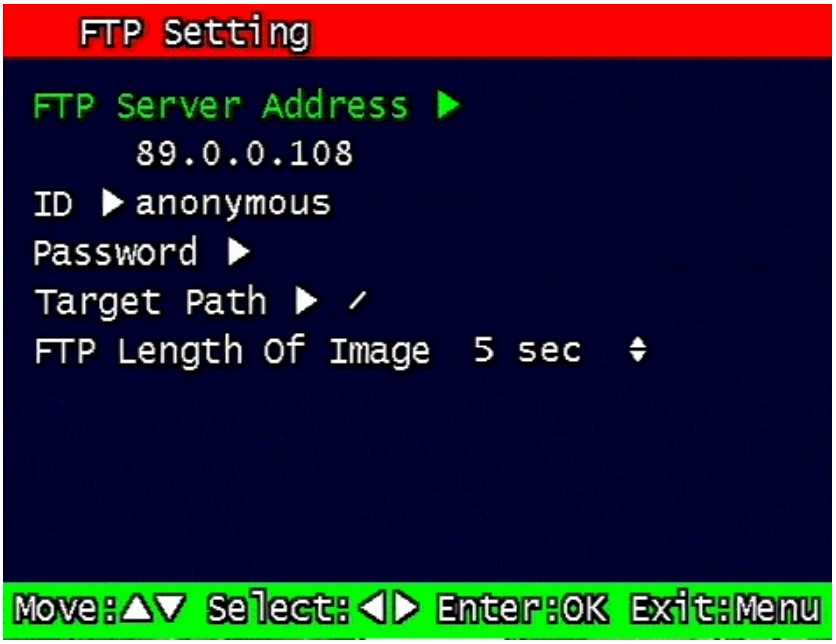


Figure. 3-15 FTP Setting

Enables the unit to transmit an assigned FTP Length of Motion picture to an FTP Server over network when an event occurs. The event will be transmitted 15 seconds after the event occurs.

3.3.5.1 FTP Server IP address

If you click ftp address , key board shaped will turn on the screen.

Put the suitable server address (ref.3.6.4.6(STATIC) & 3.6.6.4(PPPoE))

If you want Domain name instead of IP address under PPPoE, STATIC , a suitable DNS server address should be at the network setting menu.

3.3.5.2 ID

Configure the FTP ID. The ID can contain maximum of 31 characters.

Figure. 3-16 FTP ID

3.3.5.3 Password

Configure the FTP password. The password can contain maximum of 12 characters.

Figure. 3-17 FTP Password input

3.3.5.4 Target Path

Configure the path to transmit to an FTP server. The path can contain maximum of 31 characters.

Figure. 3-18 FTP Target Path

3.3.5.5 FTP Length of Image (second)

Select FTP length of image by second (5 to 10 seconds are selectable)

to transmit image files for selected seconds.

3.3.6 FTP Trigger Setting

Selects on/off for transmitting the video file to FTP for each channel.

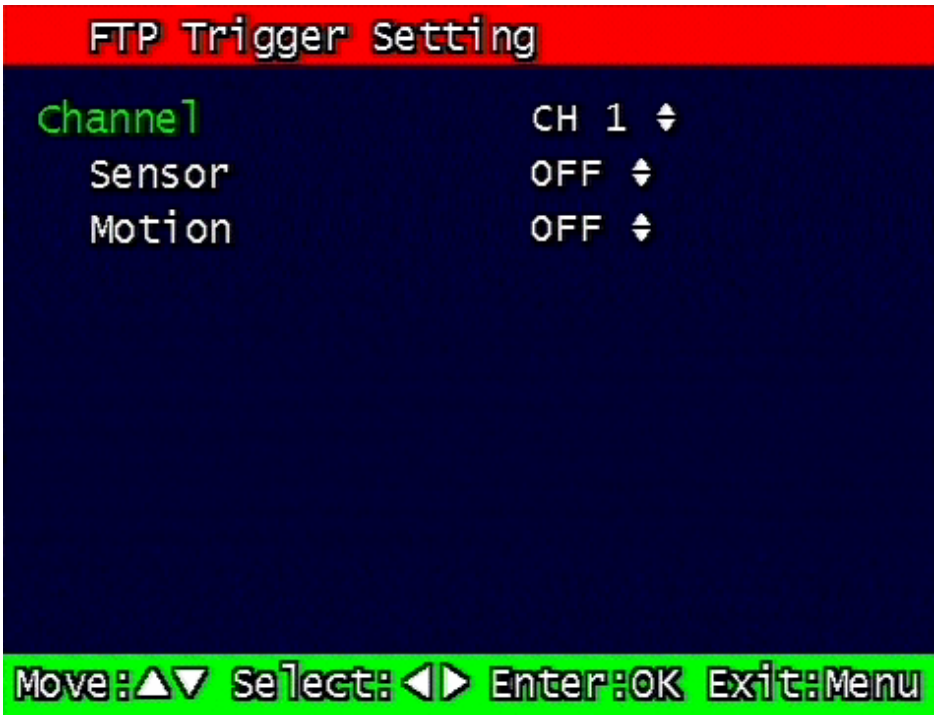


Figure. 3-19 FTP Trigger Setting

3.3.6.1 Sensor

Configure sensor events.

3.3.6.2 Motion

Configure motion events.

3.3.7 E-Mail Address Setting

Transmits the content of an event log periodically through e-mail. Configure up to four e-mail address to transmit under event status simultaneously.

You can set up to 4 person's addresses and e-mails will be sent to all of these four at one time. The e-mail address can contain maximum of 31 characters, and the event logs transmitted through e-mail will be deleted in the DVR unit.

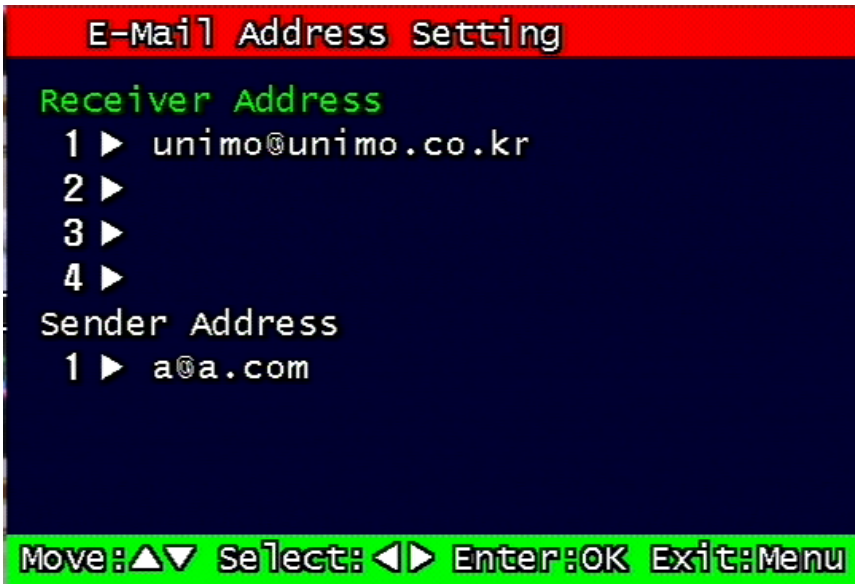


Figure. 3-20 E-Mail Address setting

3.3.8 E-Mail Setting

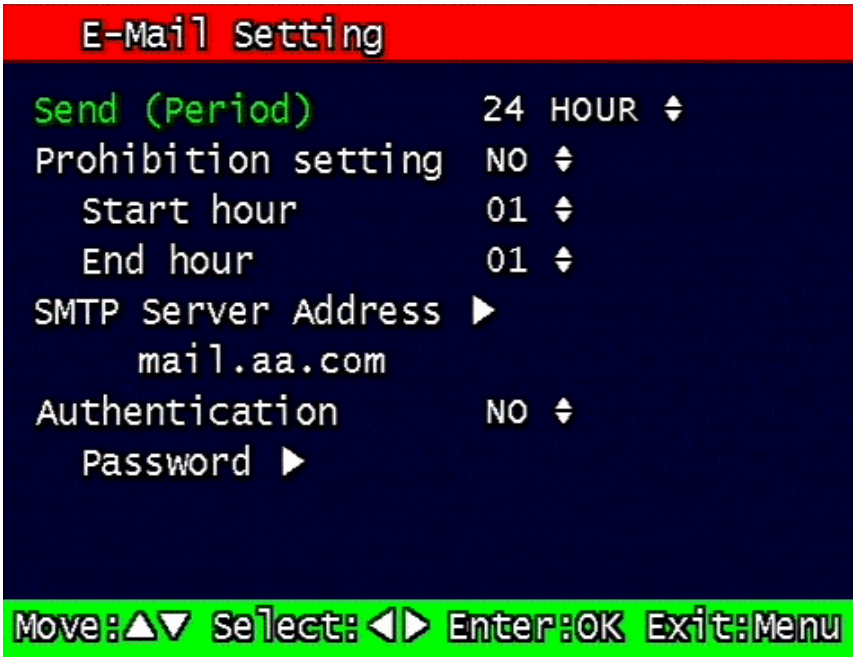


Figure. 3-21 E-Mail Setting

3.3.8.1 Send (Period)

Configure the e-mail transmitting cycle. It does not transmit when it is set to NO. The setting time can be set up at the units of within 2 minutes after event, 30minutes, 1, 2, 5, 12, 24 hours.

3.3.8.2 Prohibition setting

Set up prohibition time to transmit the e-mail. Users can enter prohibition time from the starting time and the ending time of transmitting the e-mail

3.3.8.3 SMTP Server IP address

If you click ftp address , key board shaped will turn on the screen.

Put the suitable server address (ref.3.6.4.6(STATIC)& 3.6.6.4(PPPoE))

If you want Domain name instead of IP address under PPPoE, STATIC , a suitable DNS server address should be at the network setting menu.
If you do not know your SMTP server IP address then go to Command Prompt in Windows, then use ping and SMTP name address eg smtp.yahoo.com as below to get your SMTP IP address. (Same method also applies to finding FTP server IP address from FTP name address).

3.3.8.4 Authentication

Users can select authentication process dependent on SMTP server requirement.

Selects on/off for authentication process do authentication process whenever transmitting e-mail messages through SMTP server.

3.3.9 Event Log

Shows the event log of the selected channel. It can reset periodically by setting e-mail as described in paragraph 3.3.7.

Figure. 3-22 Event Log Display screen

3.4 Playback Setup

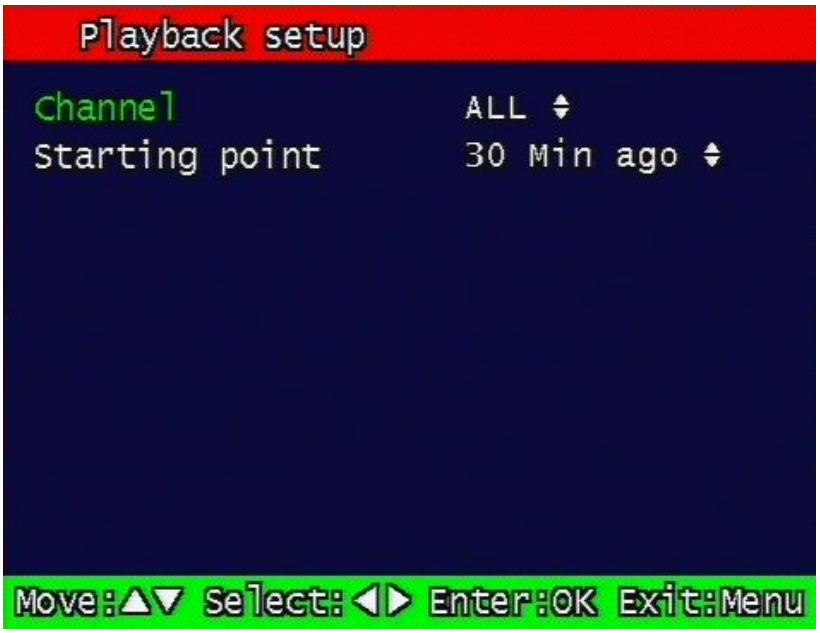


Figure. 3-23 Playback setup screen

3.4.1 Channel

Designate the channel to be viewed when the “PLAY” button is pressed.

3.4.2 Starting Point

This starting point configures the starting position when the “PLAY” button is pressed.

- FIRST: This can search for and replay the oldest recorded images from the selected channel.

- 30Min/1HOUR/6HOUR/12HOUR/24HOUR AGO: This can search for and replay the previous recorded images from the selected channel.

3.4.3 Audio

If the recorded files contain audio, choose whether to turn the sound ON/OFF During playback.

3.5 Display Setup

Figure. 3-24 Display setup screen

Determine whether to have the following be shown on the monitor: Camera name, Time/Date, HDD status, Borders. Select either ON/OFF for each item.

3.5.1 Menu Transparency

OSD MENU Transparency decision. When it goes to right part, it is not transparent.

3.5.2 VGA Set up

Providing suitable VGA port which is suitable to user's P.C

3.6 Network Setup Menu

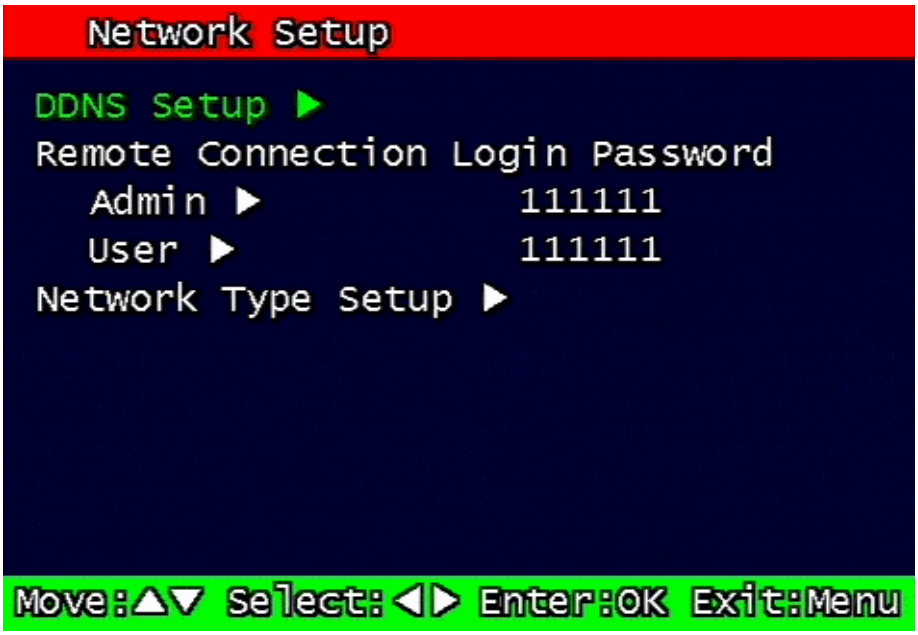


Figure. 3-25 Network Setup screen

3.6.1 DDNS setting

Set up DDNS (Dynamic Domain Name System) server address & port number.

Users can set up two DDNS server address and port, for the faster setting jog shuttle can be used, too.

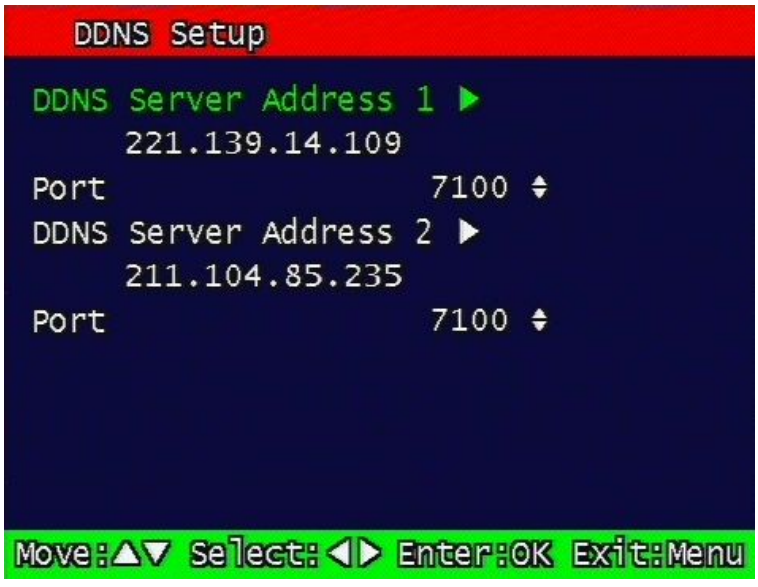


Figure. 3-26 DDNS setup screen

Under DHCP or PPPoE configuration using IP Router, the DVR will receive an IP address periodically, and each time, the IP address can be different. Therefore, in order for users to access the DVR over the network, it must update its IP address to the DDNS Server.
Under IP router configuration, IP of DVR must be setup as static IP address and it must update its IP address to the DDNS server. Therefore DDNS Link on NETWORK SETUP menu should be on. (When IP router is connected from static IP, it is no necessary to setup DDNS link on)

By indicating the address of a DDNS Server, the DVR will update its IP address and its MAC address periodically. Therefore, when users access the DVR over the network, the same URL can be used. For example, if the DVR has a MAC address of “00:09:F8:12:34:56” and the domain name of the DDNS server is “ns.udrdns.net ”, the users can access the DVR with the URL “u123456.udrdns.net” The DDNS will know which machine to resolve the URL because it would contain an updated IP address and MAC address list.

The factory default value of the DDNS server address from UNIMO Technology Co, Ltd. is as follows:

- DDNS address 1 : 221.139.14.109
- DDNS address 2 : 211.104.85.235
- DDNS connection port: 7100

If users wish to operate the DDNS server by themselves, please contact us.

3.6.2 Remote Connection Login Password

There are two levels of access that can be set up in the RAMS program.

- Admin (Highest), User (Normal)
- By default, the password is 111111 when the software is first installed.

Users can use any numeric number from 1~4, combined 6 units.

Figure. 3-27 Remote Connection Login Password screen

3.6.3 Network Type

Choose one type from the following: STATIC, DHCP, & PPPoE.

Static mode uses fixed assigned IP address in the network.

DHCP (Dynamic Host Configuration Protocol) receives an IP address from the DHCP Server, and it may change according to the lease period.

PPPoE (PPP over Ethernet) mode is used for network using PSTN such as ADSL.

Please refer to paragraph 3.6.3.1, 3.6.3.2, 3.6.3.3 for detailed network type setup process

3.6.4 STATIC

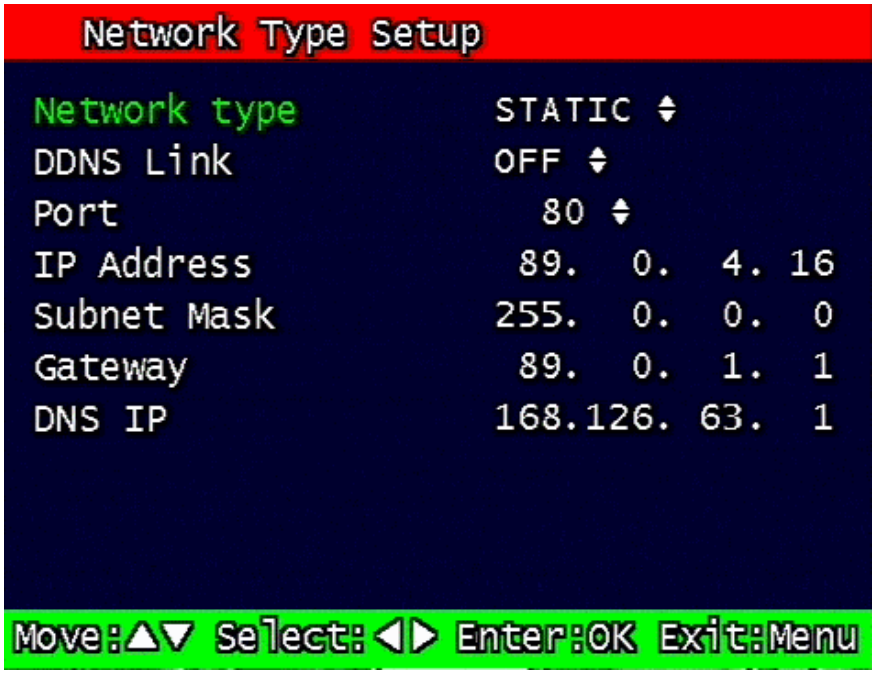

Network Type Setup
Network type STATIC
DDNS Link OFF
Port 80
IP Address 89. 0. 4. 16
Subnet Mask 255. 0. 0. 0
Gateway 89. 0. 1. 1
DNS IP 168.126. 63. 1
Move: Select: Enter:OK Exit:Menu

Figure. 3-28 STATIC Network setting

3.6.4.1 DDNS Link On/off

You can decide if you want to use Dynamic DNS or not under static network type with on/off button.

3.6.4.2 Port

Configure the Port number to be used to connect to the DVR system using RAMS (Remote Access & Monitoring System). The default Port number is port 80. Change easily by using Jog/shuttle equipped in front panel.

3.6.4.3 IP Address

Assign a fixed IP address to the DVR. Change easily by using Jog/shuttle equipped in front panel.

3.6.4.4 Subnet Mask

Assign the Subnet Mask. Change easily by using Jog/shuttle equipped in front panel.

3.6.4.5 Gateway

Assign the Gateway address

Change easily by using Jog/shuttle equipped in front panel.

3.6.5 DHCP

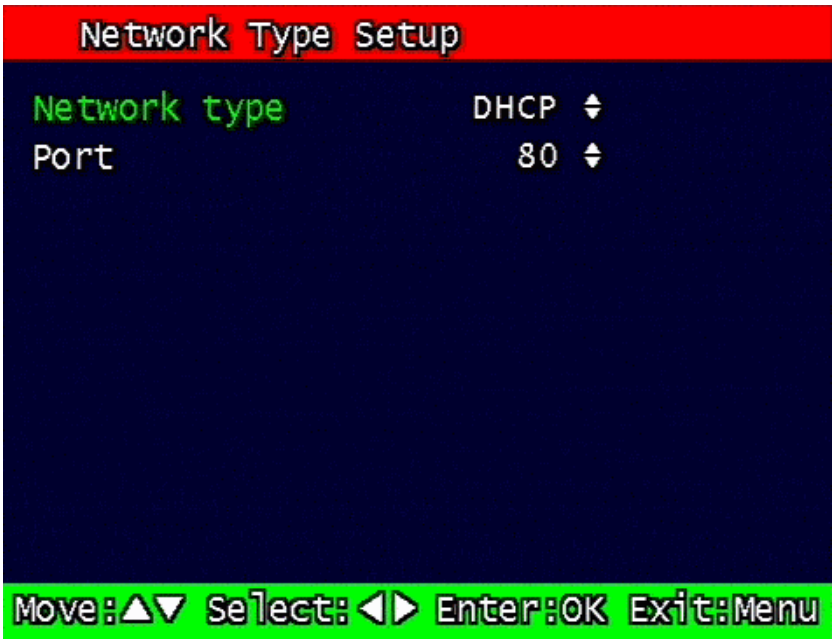


Figure. 3-29 DHCP setup screen

3.6.5.1 Port

Please refer to paragraph 3.6.4.2 for Port setting of STATIC.

3.6.6 PPPoE

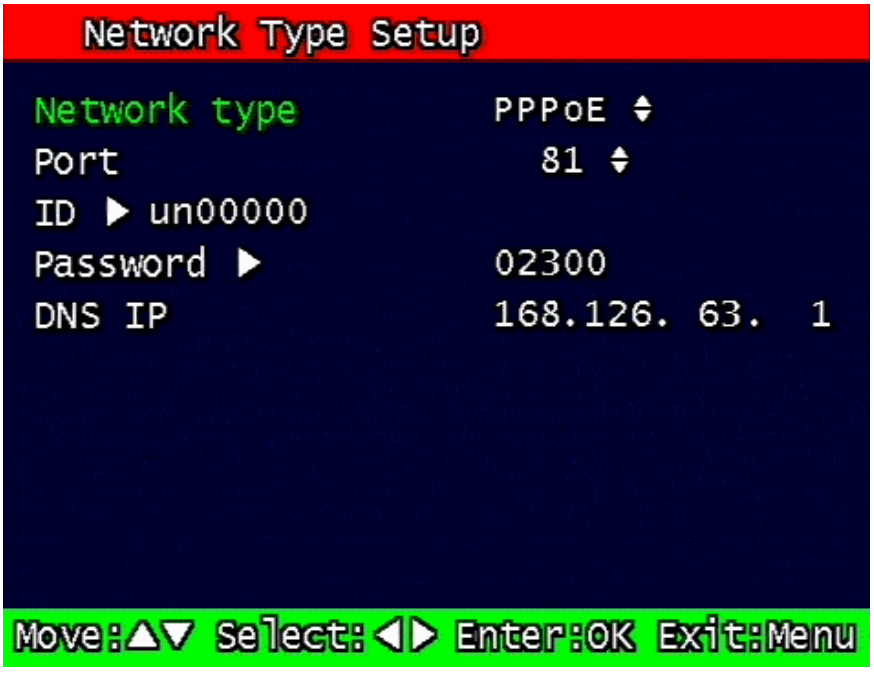


Figure. 3-30 PPPoE setting

3.6.6.1 Port

Please refer to the port setting in paragraph 3.6.4.2

3.6.6.2 ID

Type in your user ID for the ADSL account (PPPoE).

The password can contain maximum of 31 characters.

Figure. 3-31 ID input screen

3.6.6.3 Password

Type in your user Password for the ADSL account (PPPoE),

The password can contain maximum of 12 characters.

Figure. 3-32 Password input screen

3.6.6.4 DNS IP

Setting DNS address of DVR currently used. You can use jog shuttle or number button at front panel.

3.6.7 Changing the Network configuration

If users want to change network type of DVR, users must reboot the system. User can restart the new network mode setting after entering ”YES” key button.

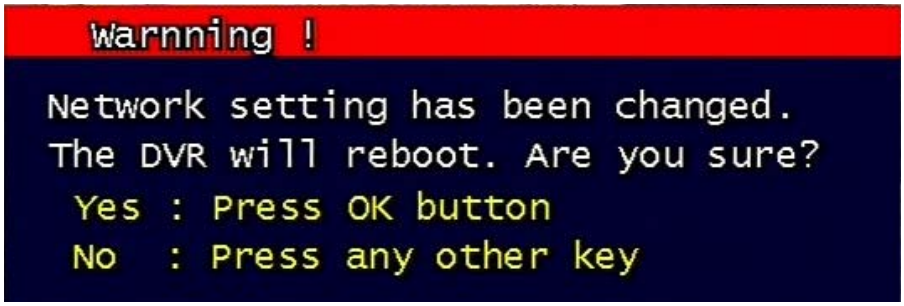


Figure. 3-33 Changing the Network setting screen

3.7 System Setup screen

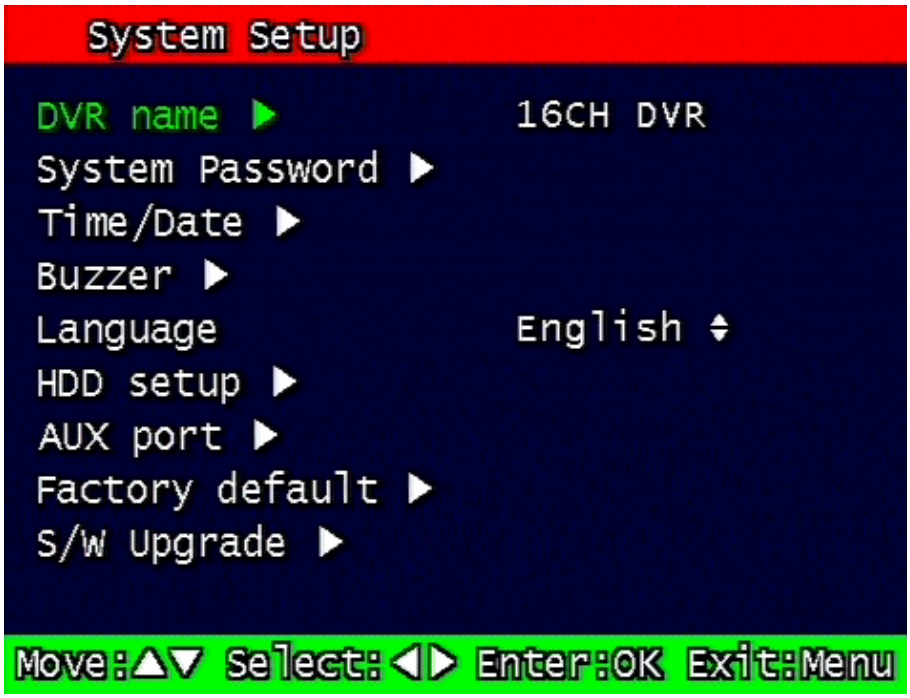


Figure. 3-34 System Setup screen

3.7.1 DVR Name

Type in the name of the DVR you wish to assign. The name can contain maximum of 12 digits.

Figure. 3-35 DVR name screen

Using the arrow, type in the DVR name.

Click “OK” when finished.

3.7.2 System Password

Figure. 3-36 System password set up

Set up part for system password, related function and application.

This is a part of installation, actual system password, related function and password application.

3.7.2.1 Password Setting

To change system password:

First, type-in the current password, confirm. Then if it is correct, type-in the new password twice. If they match, the password has been changed.

Users can use any numeric number from 1~8, combined 6 units.

Password input screen (present, new, confirm, if it is wrong -twice, confirm to change)

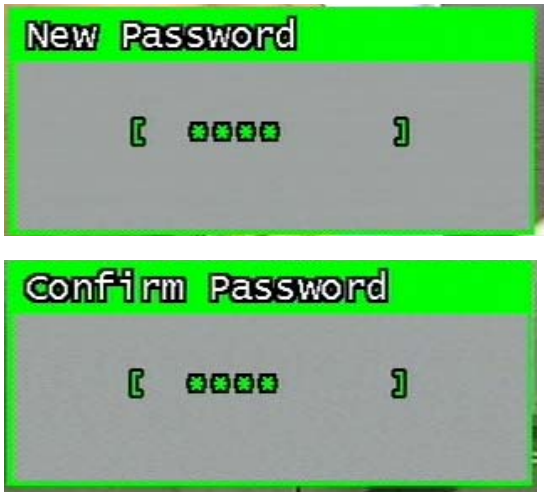


Figure. 3-37 Password input screen

3.7.2.2 Password Apply

Determine whether the system password has to be applied to power On/Off. The applicable features are recording close, enter menu, system off. Users can set up password ON/OFF for each feature.

Setting to On, when each feature starts, users have to confirm password for each step. Setting to Off, users can use any confirmation of password.

3.7.2.3 Auto Key Lock

Possible Setting time is every 30sec, 1 min, 3min, 5min, 10 minutes. If users choose setting time among them, auto key lock function will start exactly after the setting time and lock key type icon will be displayed at the bottom of window. Users can access system operation after release from key lock state by entering right current password..

3.7.3 Time / Date

Users can configure the view of time & date on the system, as well as, Day Light Saving Time.

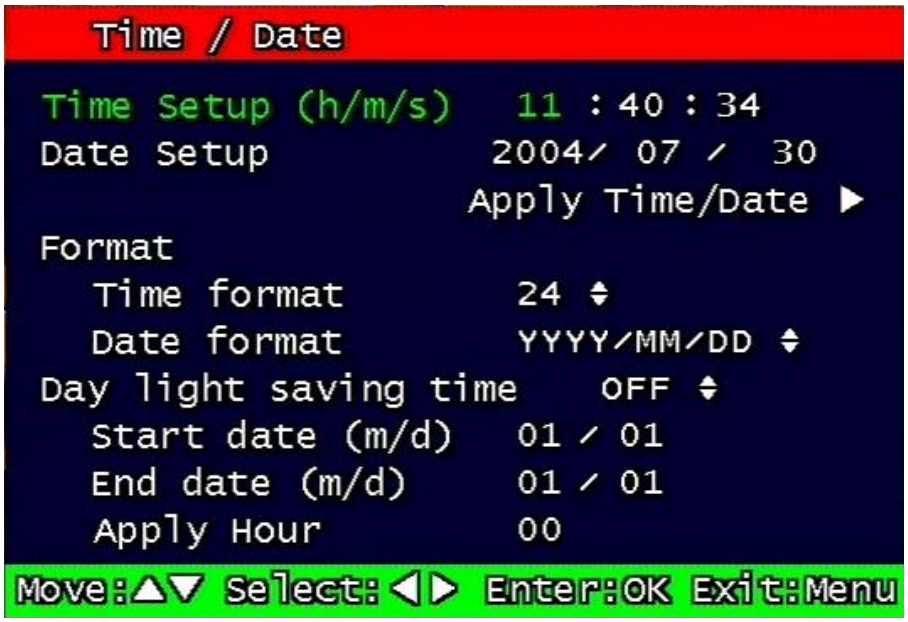

Time / Date
Time Setup (h/m/s) 11 : 40 : 34
Date Setup 2004/ 07 / 30
Apply Time/Date
Format
Time format 24
Date format YYYY/MM/DD
Day light saving time OFF
Start date (m/d) 01 / 01
End date (m/d) 01 / 01
Apply Hour 00
Move:▲▼ Select:◀▶ Enter:OK Exit:Menu

Figure. 3-38 Set up Time/Date

3.7.3.1 Set up Time / Date

Set up date and time on the system

3.7.3.2 Time / Date Format

Set up format for date and time. There are two types of time: 24hr circle/ 12hr circle. Date format can be set up as the following: YYYY/MM/DD, MM/DD/YYYY, DD/MM/YYYY.

3.7.3.3 Day Light Saving Time

Set up Start Day and End Day in Day Light Saving Time mode

For example, if users adopt day light saving time from May 01 to Oct.31, input the dates accordingly.

3.7.3.3.1 Start date (m/d)

Set up start day in Day Light Saving Time mode.

3.7.3.3.2 End date (m/d)

Set up end date in Day Light Saving Time mode.

3.7.3.3.3 Apply Hour

Configure Day Light Saving Time.

3.7.4 Buzzer

Users can turn the buzzer ON/OFF depending on the situations. Usable situation is Sensor, Motion, & Video Loss. When users activate the buzzer, buzzer will make a sound when there any event occurs. There would be no sound if the buzzer is turned Off.

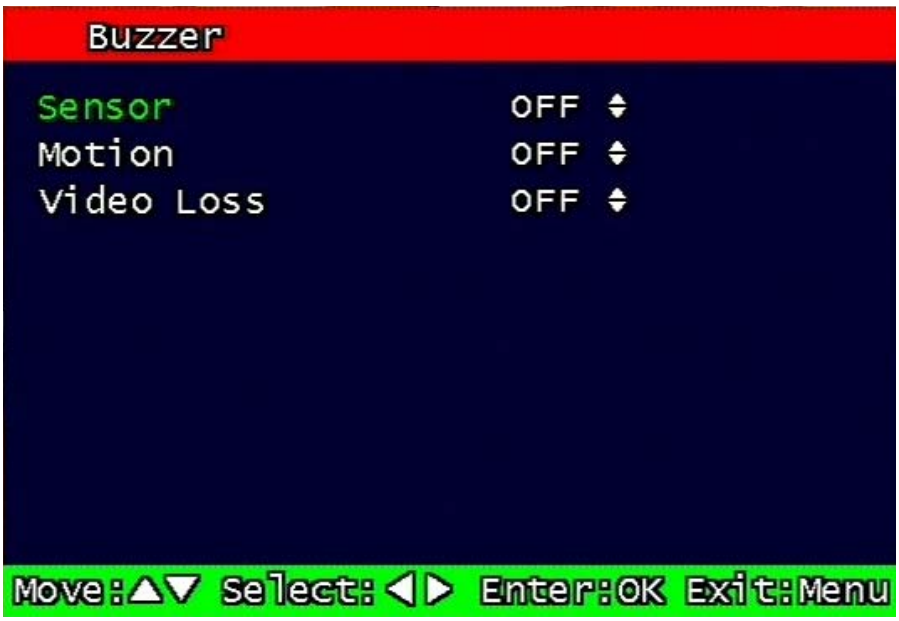


Figure. 3-39 Set up buzzer

3.7.5 Language

Six Languages (English, Korean, Japanese, Spanish, French, Germany) are available.

3.7.6 HDD Setup

Set up for Internal HDD and Removable HDD, See the information.

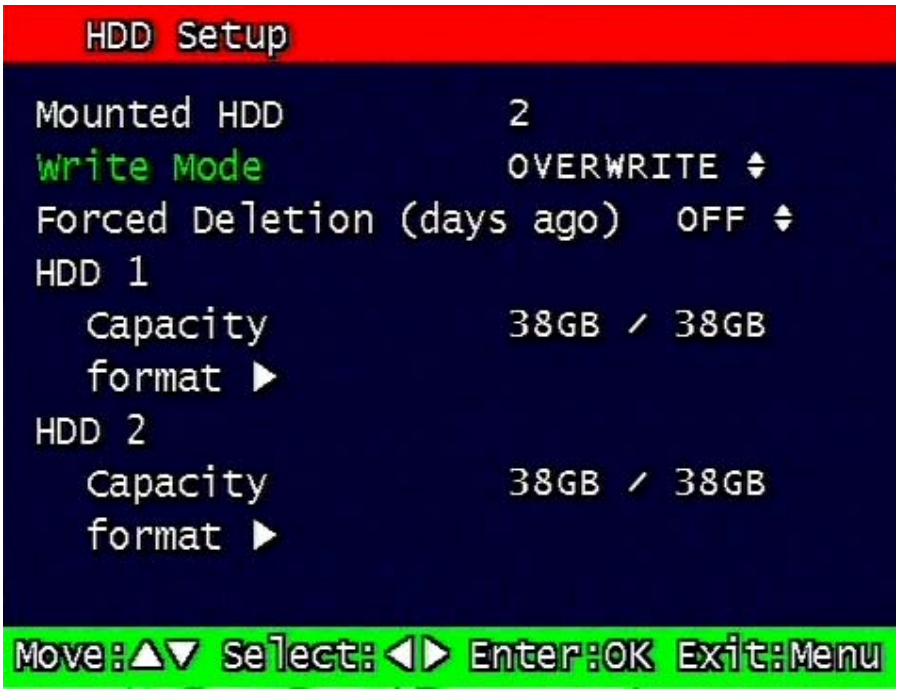


Figure. 3-40 HDD Setup image

3.7.6.1 The number of HDD

Show the HDD quantity that is built –in.

3.7.6.2 Write Mode

Set up writing type in recording.

Types are ‘Once’ and ’Overwrite’. If set up by ‘Once’, HDD can record until the Full state.

If set by ‘Overwrite’, HDD will record continuously by start overwrite oldest data.

3.7.6.3 Forced Deletion(Previous few days)

The images recorded earlier than specific date can be erased by force.

The number of dates for erasure can be selected from 1 ~ 100.

In case that “OFF” is setup, the recorded images shall not be erased,.

In case that “30” is setup, the images recorded 30 days earlier than today shall be erased.

3.7.6.4 Hard Disk

3.7.6.4.1 Capacity

Indicate the used part and total capacity of Internal HDD.

Used part of HDD (GB) / Full capacity of HDD (GB)

3.7.6.4.2 Format

This is function for internal HDD formatting and you must reboot the system after this instruction. Confirmation box on format will appear after entering format key. User can format and erase all information of HDD, after entering “YES” key button.

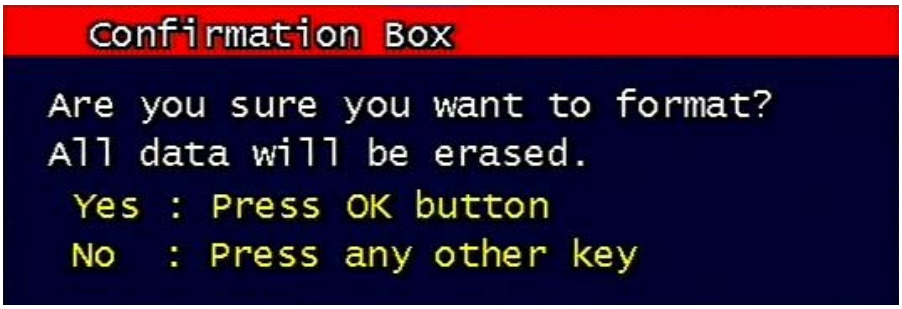


Figure. 3-41 Confirmation box for HDD format

Max 2 HDD can be installed. The added HDD works as a HDD, together with first HDD

3.7.7 Aux Port

Set up for Aux Port

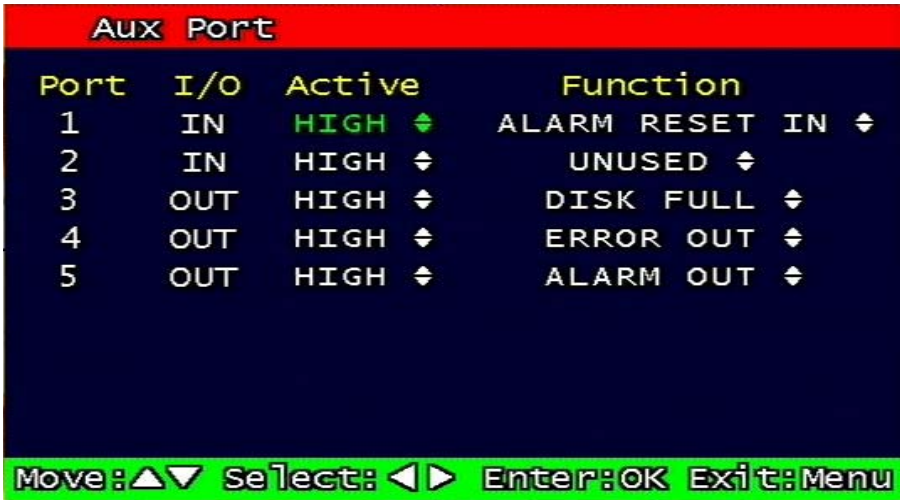

Aux Port
Port I/O Active Function
1 IN HIGH ALARM RESET IN
2 IN HIGH UNUSED
3 OUT HIGH DISK FULL
4 OUT HIGH ERROR OUT
5 OUT HIGH ALARM OUT
Move: Select: Enter:OK Exit:Menu

Figure. 3-42 Set up AUX port screen

3.7.7.1 Active

Set up Active state. Low/High will be different depend on machine..

3.7.7.2 Function

The following list contains a brief description of each function.

3.7.7.2.1 Direction : IN

- UNUSED: Do not use the AUX port.
- ALARM RESET IN: Pause alarm or buzzer when event occurred
- RECORD START IN: Record is on while external signal comes in.
- RECORD ON/OFF: Recording start/stop during user push the button & same as pushing remote controller or DVR machine

3.7.7.2.2 Direction : OUT

- ALRAM OUT: Notice the assigned port when event occurred
- ERROR OUT: Notice the assigned port when system error occurred (Mark system error)
- RECORD START OUT: HDD of DVR is full(100%), send signal to DVR which is connect with AUX port. During receiving recording signal through AUX port, it can record it and the mode of DVR AUX in port is RECORD
- DISK FULL: If HDD is full, send signal to the AUX port.
- RECORD STATUS: Indicate whether it is recording or not

3.7.8 Factory Default

All of set-up date of system comes back to Factory default.

Confirmation box on picture setting default will appear after entering default. User can restore the factory default setting after entering ‘YES’ key button.

Please refer to paragraph 5.3 for factory default.

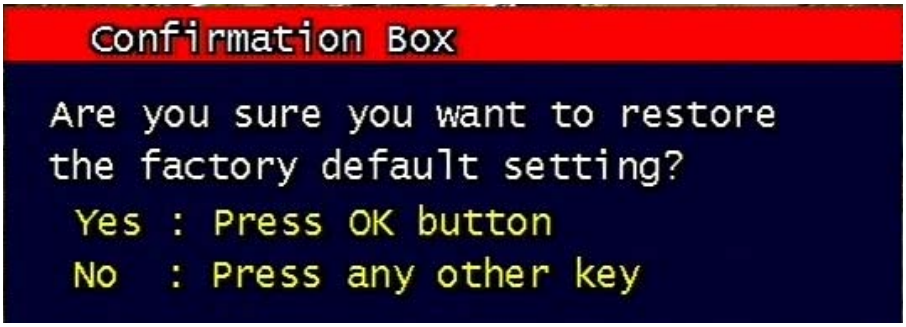


Figure. 3-43 Confirmation box for Factory Default

3.7.9 Software Upgrade

Users can upgrade the software of Ramdisk and Kernel using the USB flash drive (thumb drive) by the following steps.

- Get the latest version of software (Ramdisk/Kernel) from distributor
- Copy the downloaded files from the PC to the USB memory.
- Connect the USB memory to the USB port.
- Go to 'System Setup' then 'S/W Upgrade' then select Ramdisk or Kernel to upgrade.

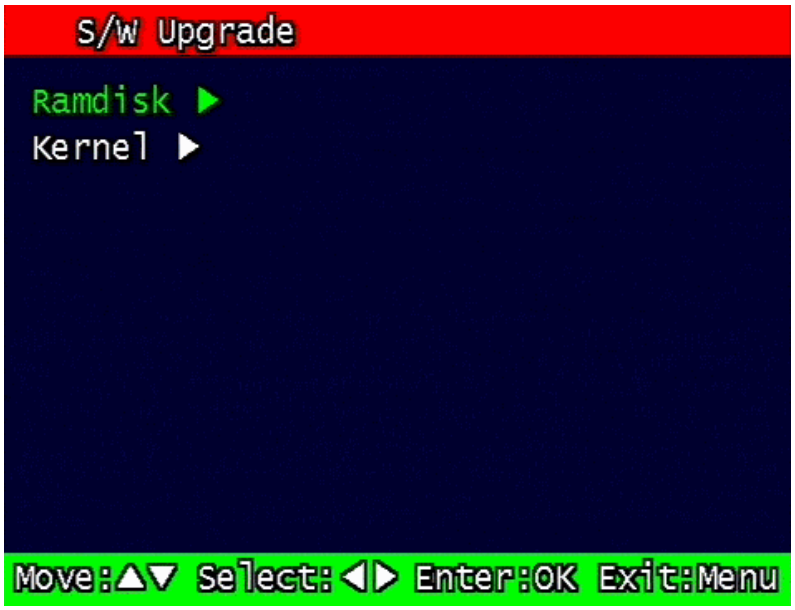


Figure. 3-44 Software Upgrade

- After the unit recognizes the USB flash drive and upgrading end, the unit will reboot.

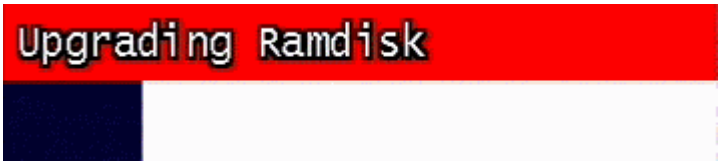


Figure. 3-45 Ramdisk Upgrade

3.8 Backup

Backup recording data to CD-RW or USB Flash Drives

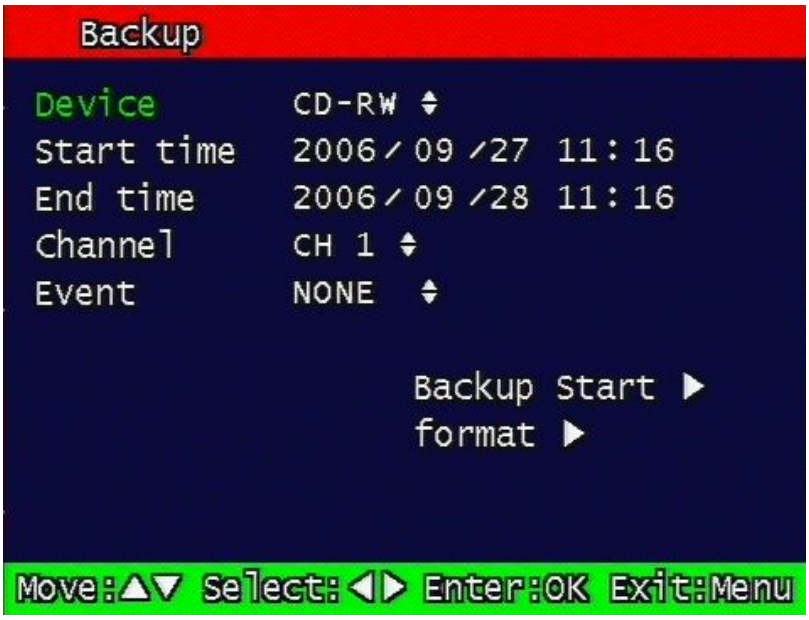


Figure. 3-46 Backup screen

3.8.1 Backup Device

Set up the device for backup. USB / CD-RW are available

3.8.2 Start Time

Input the start of backup date and time.

3.8.3 End Time

Input the end of backup date and time.

3.8.4 Channel

Choose the channel to backup.

3.8.5 Event

Choose the event to backup. In case of none mode, selected files according to time will be backed-up.

3.8.6 Backup Start

Based on the input date, time, channel and event & other condition search the images will be backed-up to the chosen device. Back up progress rate is marked on the bottom right side of the screen.

3.8.7 Format

This menu is used only when backup device is CD-RW. In case that backup device is CD-RW, format command has to be done by this menu, before starting backup.

However, with CD-R media, backup can be started without format.

3.9 System Log

It is for displaying major system events.

The items that manage by Log are Video Loss, Power On, Power Off, Menu entry, HDD Full, failure of FTP transmission, failure of E-mail transmission

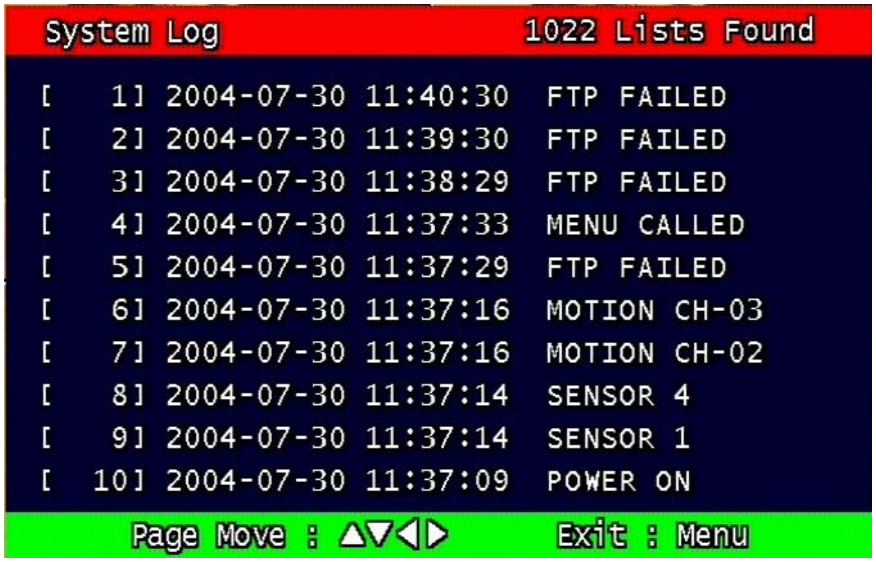


Figure. 3-47 System Log

3.10 System Information

Figure. 3-48 System Information

3.10.1 Video type

It shows that present Video type of System is NTSC or PAL.

3.10.2 H/W version

It shows the H/W Version of system.

3.10.3 S/W version

It shows the S/W Version of system.

3.10.4 KERNEL version

It shows the S/W Version of KERNEL.

3.10.5 Mac Address

It shows Mac Address of system.

3.10.6 Audio

Shows audio part availability.

3.10.7 Language

Shows supporting language.

3.11 Search Menu

When you click ”SEARCH” button below screen will be shown on the screen.

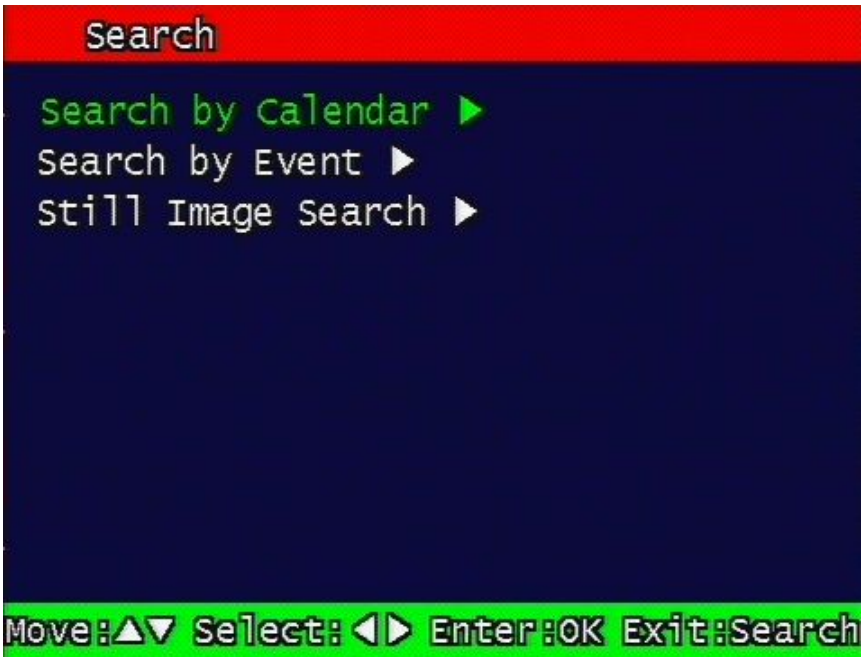


Figure. 3-49 Main Screen of Search

3.11.1 Search by Calendar

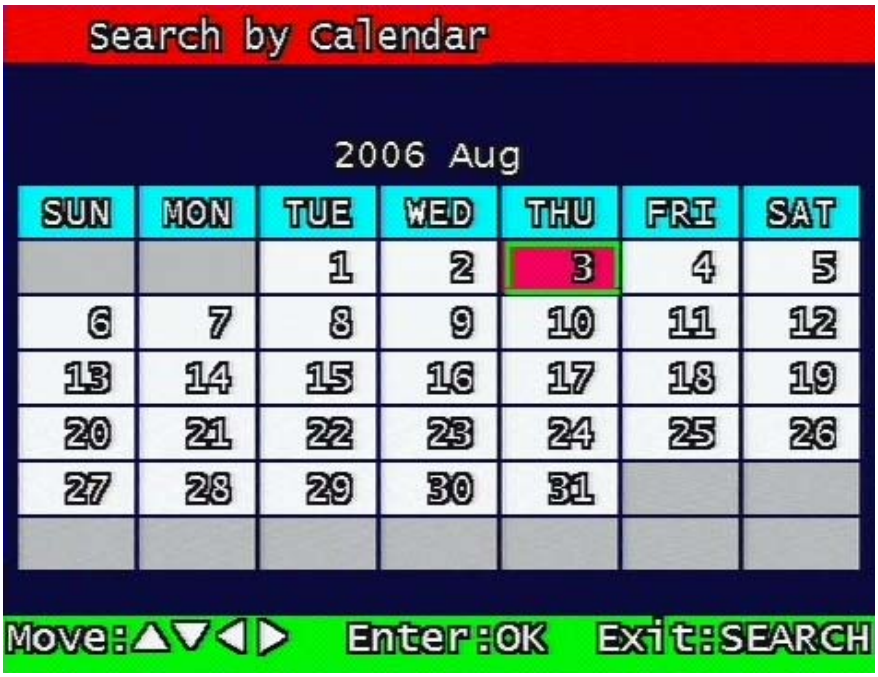

Search by Calendar
2006 Aug
SUN MON TUE WED THU FRI SAT
1 2 3 4 5
6 7 8 9 10 11 12
13 14 15 16 17 18 19
20 21 22 23 24 25 26
27 28 29 30 31
Move:▲▼◀▶ Enter:OK Exit:SEARCH

Figure. 3-50 Search by Calendar

3.11.1.1 Calendar View

When you click specific date and time , it will be showing recorded data as drawing.

3.11.1.2 Drawing Color

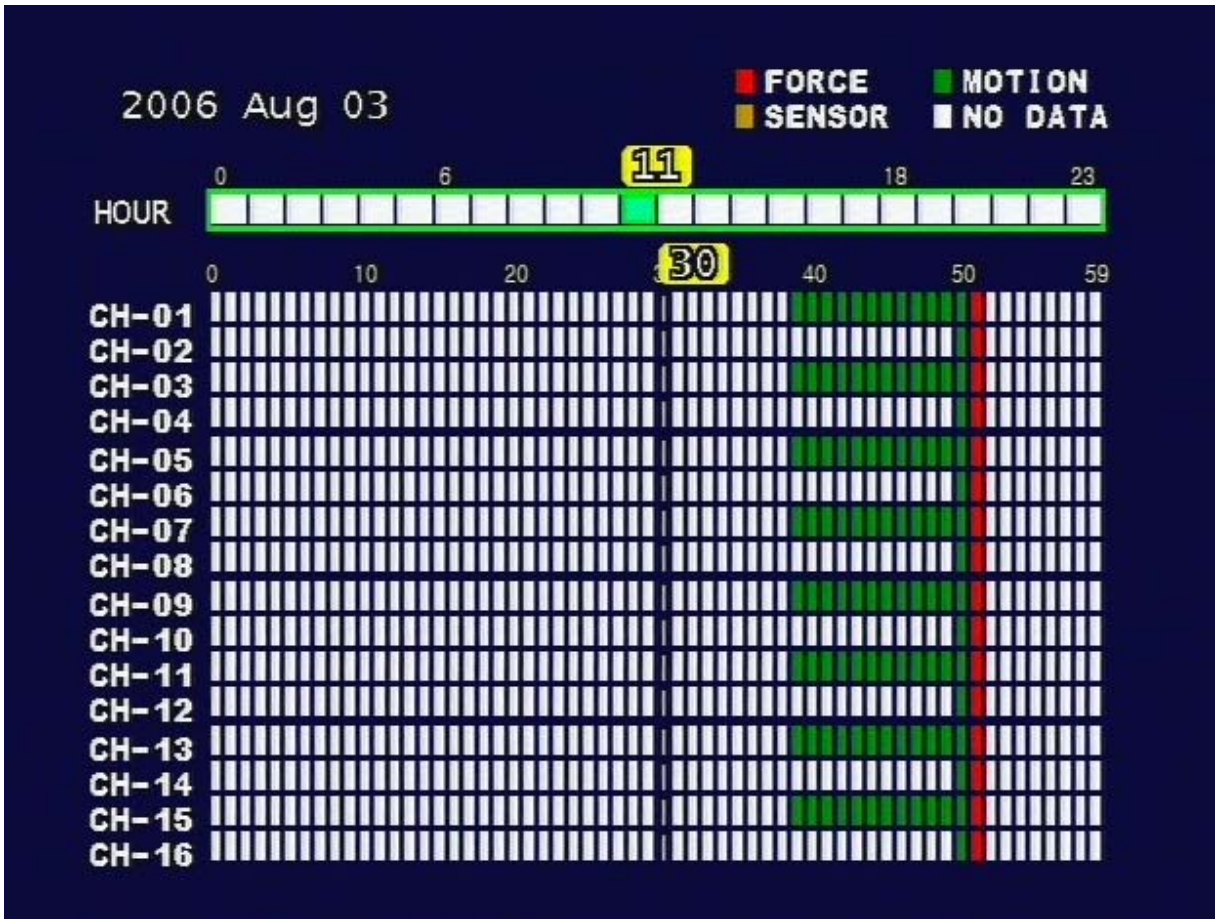


Figure. 3-51 Calendar Search Screen

- Red : Enforced Recording
- Green: Motion Event Recording
- Purple: Sensor Event Recording
- White : No Recording

3.11.1.3 Hour(Time)

It is composed of 24hours. Recording status can be distinguished by color. Even though Your recording mode is Motion plus Sensor mode, but if motion recording is bigger than Sensor , then the color will be green.

3.11.1.4 Display by minutes

If there are some recording on a specific time and channel , it shows suitable color on a specific minute time zone.

3.11.2 Search of Event

It shows event occurring time.

3.11.2.1 Start time

Key in the time you would search from 1970 to 2037(No more or less than that)

3.11.2.2 Ending Time

Key in the time you would search from 1970 to no more 1970 to 2037.

3.11.2.3 Select the channel

Select the channel you want to look at.

3.11.2.4 Sample of Search

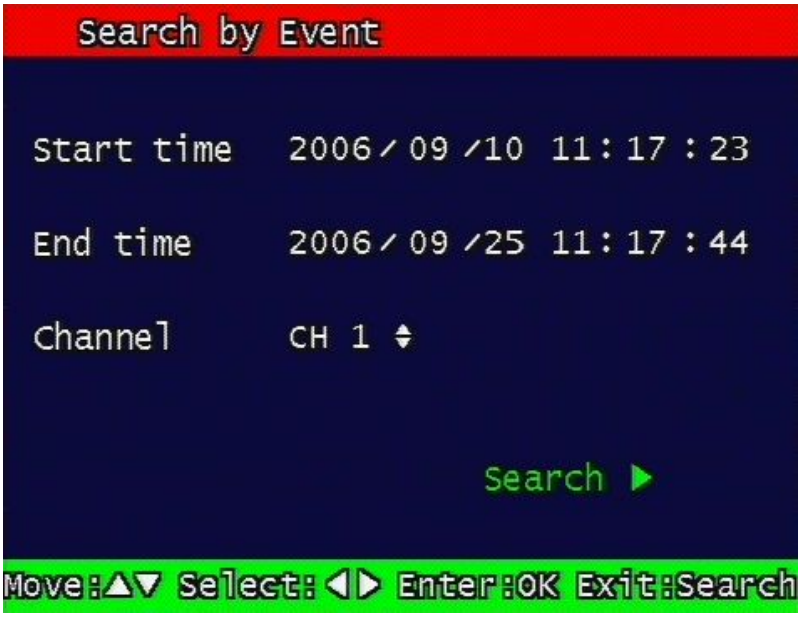


Figure. 3-52 Search Screen of Event

3.11.3 Still Image Search

You do not need to put any channel number, from the oldest data images will be shown. Up to 999 images can be recorded and saved.

3.11.3.1 Still Image Search

3-53 Still Image search Screen

3.11.3.2 Still Image USB Back up

Click the specific file and push “PLAY” button , still image will be copied.

3.11.3.3 Converting Still image file into JPG format.

- Execute simpleplay_m4.exe.file

- Open the file to change into jpg

- Click the second disc button of Toolbar menu #2 and save it as jpg or bmp type.

3.12 PLAYBACK

3.12.1 PLAYBACK of recorded Images

This function means that the images recorded in the system are searched by Time or Played back directly.

3.12.1.1 Method of playback

Move the cursor on searched specific time zone and push “OK” button, then playback will be begun with audio if you record it together.

3.12.1.2 Screen of played back.

Figure. 3-51 Screen of playback

3.12.1.3 Control during play back

3.12.1.3.1 Stop of Play back

If user needs to stop playback, user should press button “STOP”

in the remote controller of in the system, and play back stops and live screen is coming back.

In case of calendar search , “SEARCH“ button let it turn to previous search screen.

3.12.1.3.2 Temporary Stop during Playback

In order to stop temporarily playback, press button “PAUSE”.

If users press the button “PAUSE” again, play back continues.

3.12.1.3.3 Speed level of Play back

There is 7 Speed levels for playback (Normal, Fast mode) in the forward and backward direction as well.

There is 2 speed levels for slow playback mode in the forward and backward.

If user needs faster speed of playback, users press button “RIGHT” and speed is controlled.

If user needs slower speed of playback, users press button “LEFT” and speed is controlled.

3.12.1.3.4 Change of Direction of Playback

There's forward and Backward directions.

In order to change direction from Forward to Backward, user press the button "REVERSE PLAY" and backward playback starts with normal speed. On the contrary, to change direction from Backward to Forward, user press the button "PLAY" and Forward playback starts with normal speed.

3.12.1.3.5 Select of channel of Playback

This function is to change the other channels during the same time .You can use remote control to change the other channel. In case of channel # 1 , You can put the channel # 1 button for about 3 seconds or push "OK" button.

3.12.1.3.6 Audio ON / OFF

In case of recorded image with Audio, user can on or off by using the button "AUDIO MUTE". The Icon in the top of screen shows the status (ON / OFF) of AUDIO.

3.12.2 Playback of still image

3.12.2.1 Method of playback

As the paragraph 3.11.2, users put the curser to contents. In the searched still Image Lists, and press Button "OK".

The screen of search list disappears and still image is played back as the paragraph 3.11.2.

3.12.2.2 Screen of playing back

Figure. 3-52 Still Image of playing back

3.12.2.3 Control during Still Image Play back

3.12.2.3.1 Stop of play back

To stop the playing back, User press button “STOP” or “ SEARCH”.

Playback stops and screen of search list appears.

3.12.2.3.2 Next screen

Press Button “RIGHT” and next screen is played back.

3.12.2.3.3 Previous screen

Press Button “LEFT” and previous screen is played back.

3.13 Miscellaneous Menu

Figure. 3-53 Miscellaneous Menu

This menu is to use the five functions that are placed only on the remote control but on the keypad of the unit.

3.13.2 NET

Displays the current network IP and the user connected to the network.

(It substitutes the NET button on the remote control).

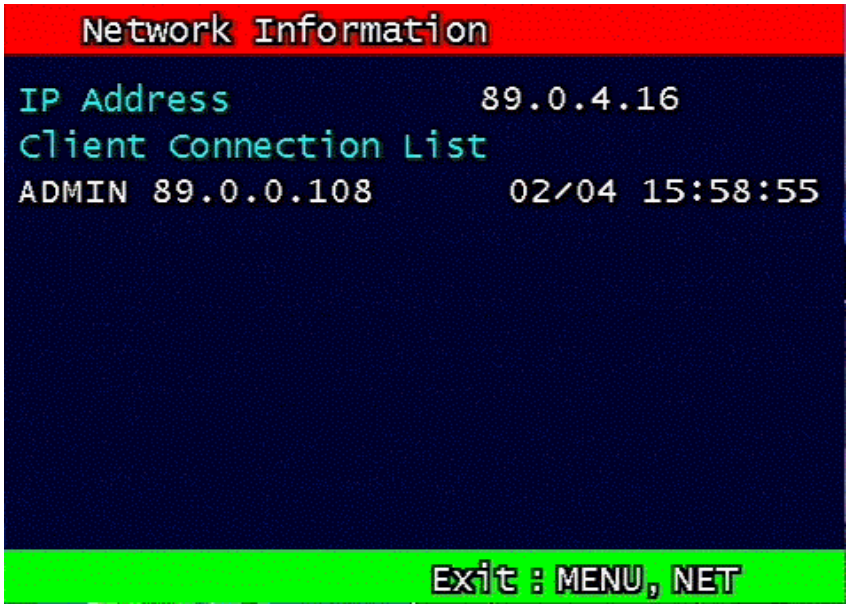


Figure. 3-547 Network Information

3.13.3 OSD

Turns on/off the OSD (On Screen Display). It substitutes the OSD button on the remote control.

3.13.4 Audio Mute

Turns on/off the audio. It substitutes button on the remote control.

3.13.5 HDD

Displays the HDD information. It substitutes the HDD button on the remote control.

3.13.6 LOG

Display the System Log. It substitutes the LOG button on the remote control.

4 Client program

4.1 Overview of DVR

- **RAMS_M4** (Remote Access & Monitoring System MPEG4) is used to remotely access, monitor, and operate the DVR for real-time live viewing, playback, backup, on-the-fly recording, and control over the LAN/WAN.
- **UniPlayer_M4** is a viewer with functions for recording, capturing, & backing up files.
- **QuickInstaller_M4** is a setup configuration template for quick & easy, multiple unit setup using RS-232 or network. It can used to derive setting parameters of DVR system and to save setting parameters to DVR system. Up to 8 users can access to it at the same time.

4.1.1 PC requirement (minimum)

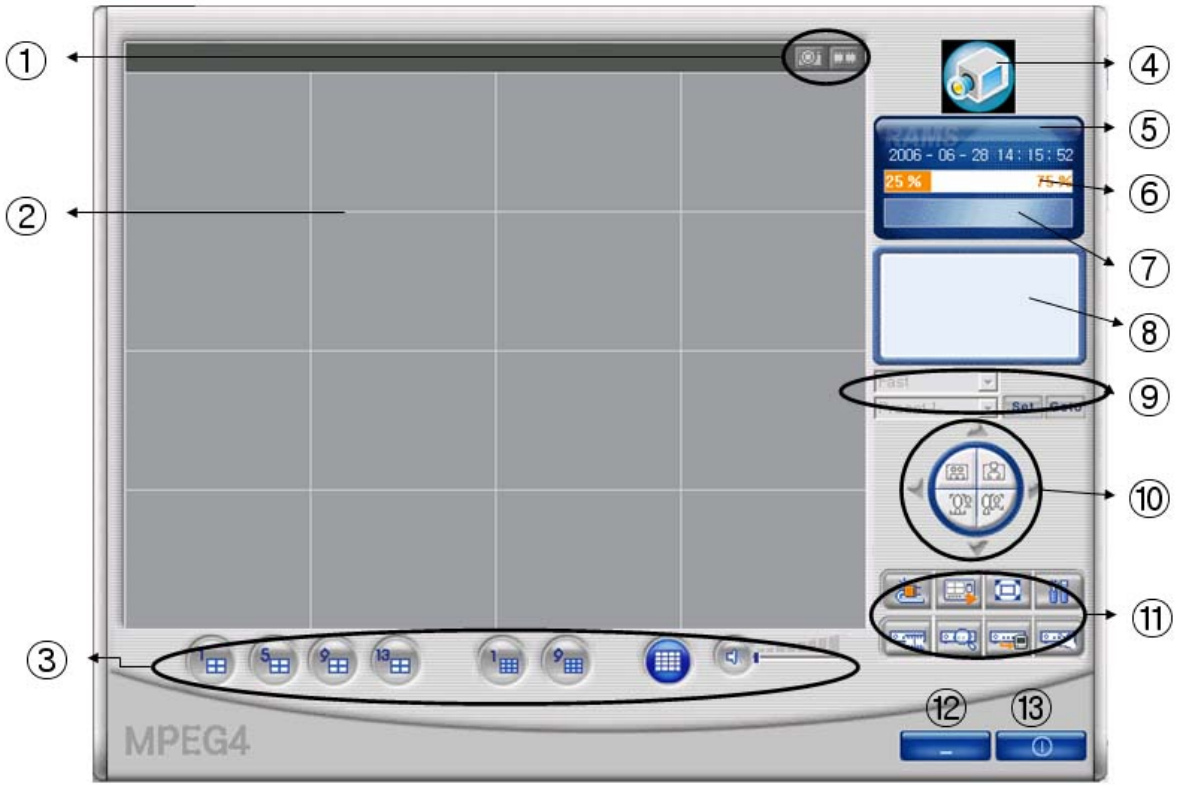
- Window 98
- DirectX 8.0
- Explorer 5.0
- VGA Card for over 2 x AGP
- Video card memory 64MB memory (the latest graphic cared driver)
- Resolution 1024 x 768

4.2 Installation & execution of program

- Please use DirectX 8.0 or newer.
  - http://www.microsoft.com/windows/directx/default.aspx - English
  - http://www.microsoft.com/korea/directx/default.aspx - Korean
- To ensure optimal performance, install the latest graphics driver.
- Install DVR by clicking on the DVR_MPEG4_Verx.x_Setup.exe file.
- Rams_M4.exe, Uniplayer_M4.exe, QuickInstaller_M4.exe icons will be placed on the desktop after a successful installation.

4.3 RAMS_M4 (Remote Access & Monitoring System Mpeg4)

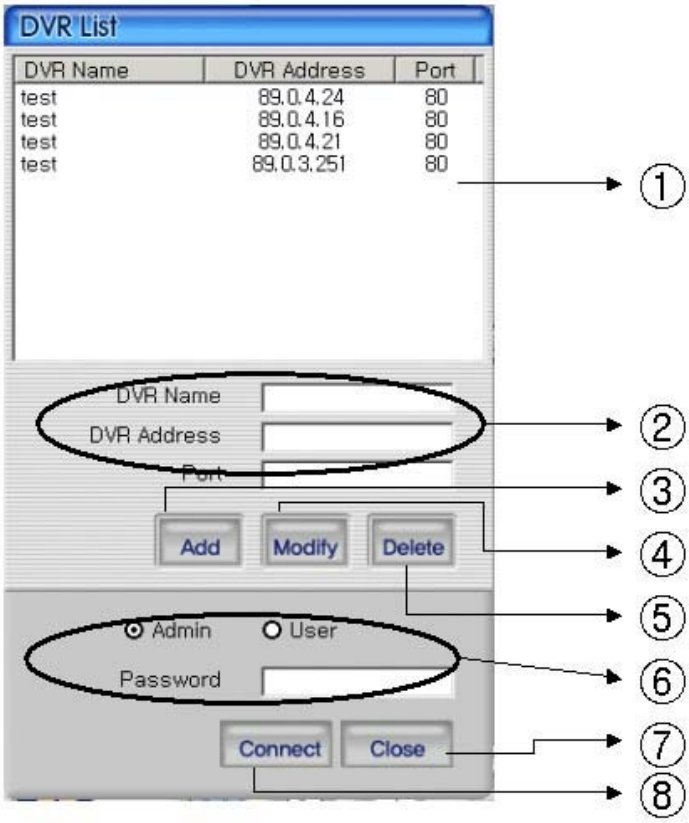
4.3.1 Screen and button



① Screen capture button, Video record button
② Screen display
③ Channel display button, Sound control button
④ If logo is clicked, program version window appears.
⑤ Time indicator
⑥ PC HDD information indicator
⑦ Live or Playback mode indicator
⑧ Connected DVR information indicator
⑨ PTZF Speed, Preset
⑩ Pan/Tilt, Zoom/Focus button
⑪ DVR Connect button, UniPlayer_M4 link button, Full Screen button, Parameter setting button, DVR recording button, DVR search & playback button, DVR retrieve & backup button, DVR Setting button
⑫ Minimizing button
⑬ Close program

4.3.2 Connecting to DVR

Click icon to open the DVR list.



① This box allows the user to select the IP address assigned to the selected unit. This is required for making a network connection.

② To create a new IP address & DVR selection, enter the DVR name, DVR address, and port number.

③ To Click to add the newly entered DVR information into the DVR list

④ After selecting a DVR Name from the list and making changes, click Modify to update the changes made to the item.

⑤ To remove an IP address/DVR Name , click and highlight the desired name, then press the Delete button to remove.

⑥ Enter the correct password for either Admin or User for the target DVR.

⑦ Click Close to exit the DVR List

⑧ Click Connect after correct password has been entered to connect to the desired DVR.

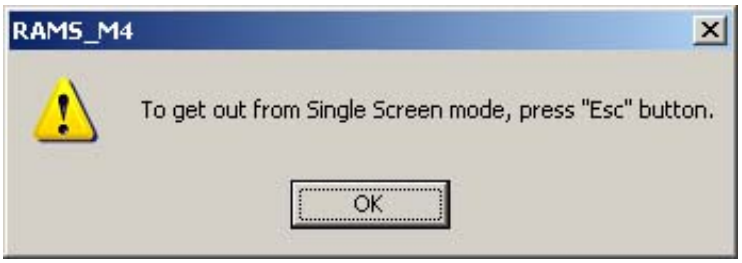
4.3.3 UniPlayer_M4 link

If you click this button on main menu, UniPlayer_M4 program will be executed.

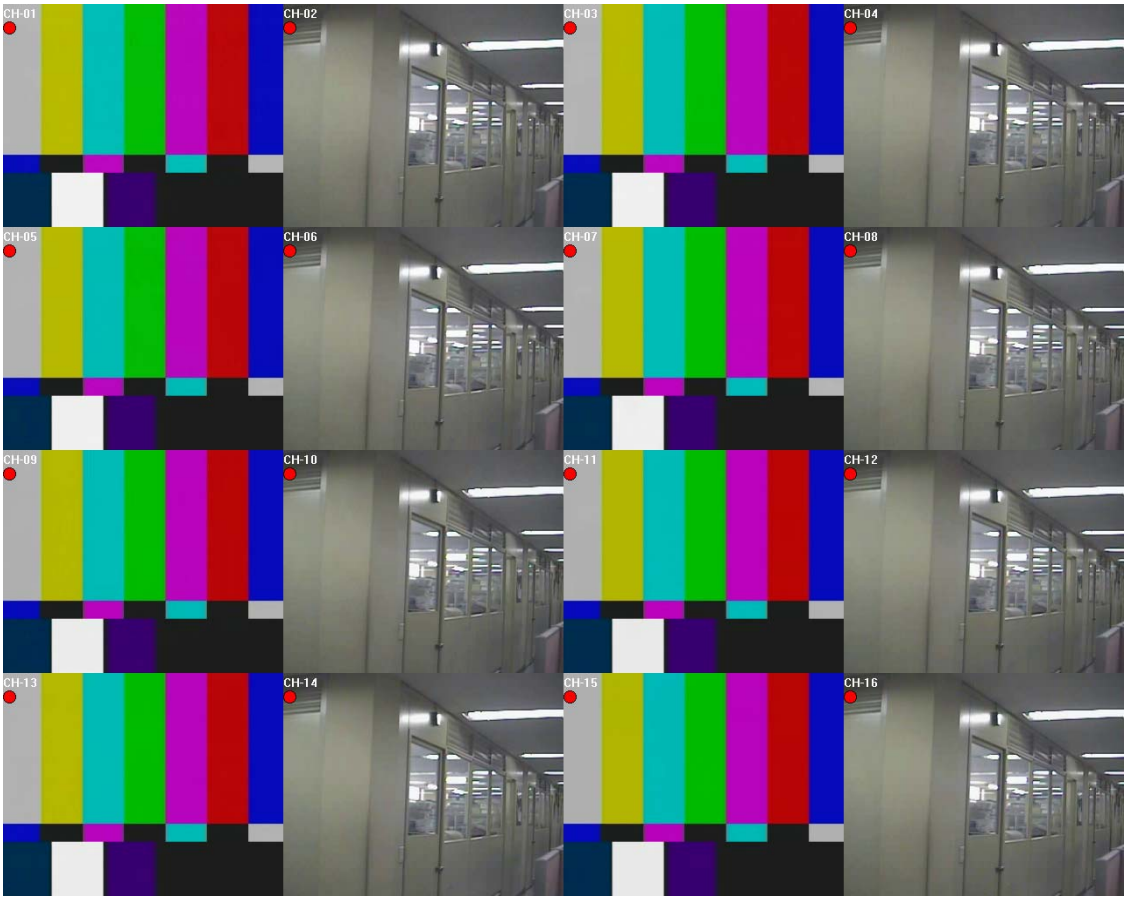
Regarding the UniPlayer_M4 program, please refer to the article 4.3

4.3.4 Full-screen display

If you click button on the main menu, you can see full screen pictures.



If users press the key of ESC, you will return to the selected screen.

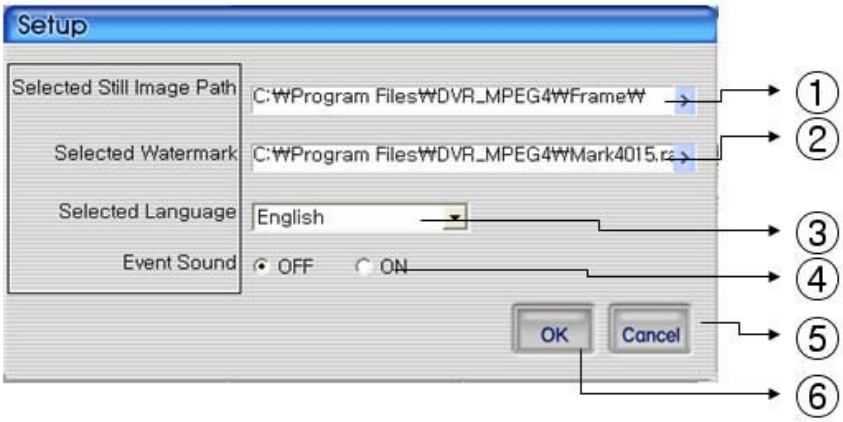


OSD in the screen is same as that of DVR

(Channel name, recording on/off, Motion icon, Sensor icon)

4.3.5 Program setup

If users click this button in the main window, window of program setup appears.



① Capture a still image and select a folder where the image is recorded

② Select the image of water mark to be input in the still image

③ Set up a program by user's language

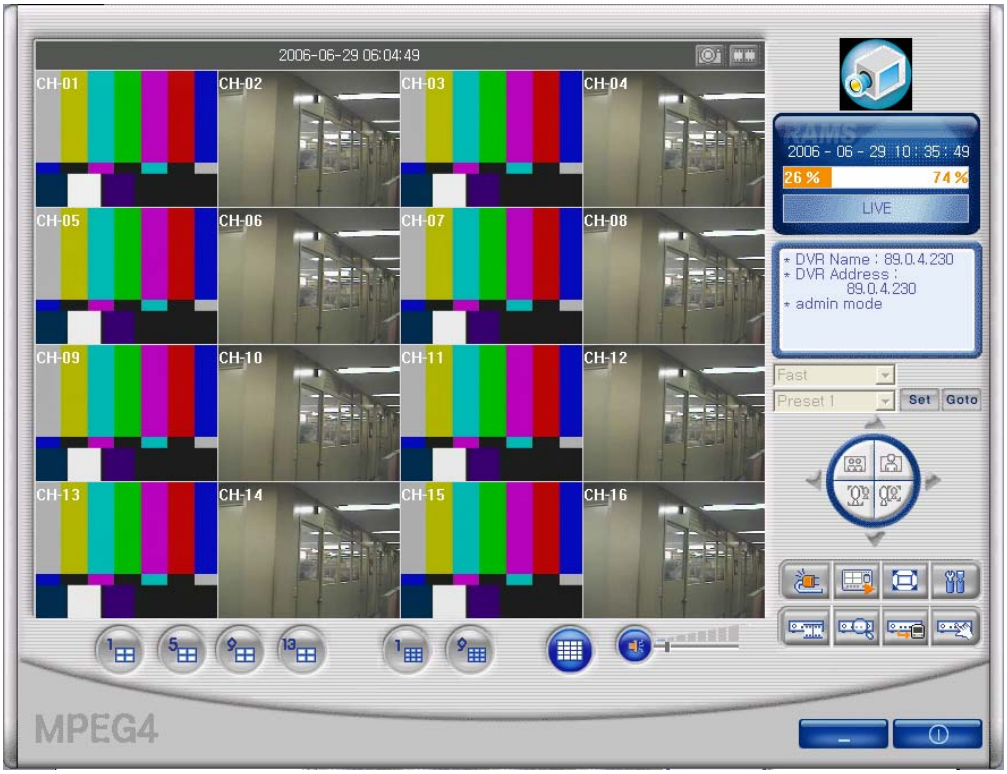
④ Set up whether alarm occurrence is on or off when motion detection or sensor icon activated.

⑤ Close the window without saving the setup

⑥ Close the window after saving the setup

4.3.6 DVR recording

It works as recording button of DVR system. After logging in admin, button will be activated. Under recording mode at DVR, red icon will be displayed at the top of right at the window.

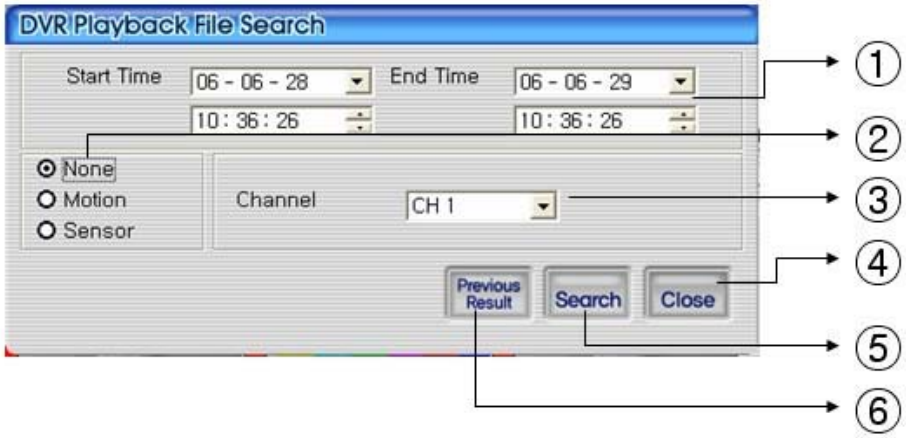


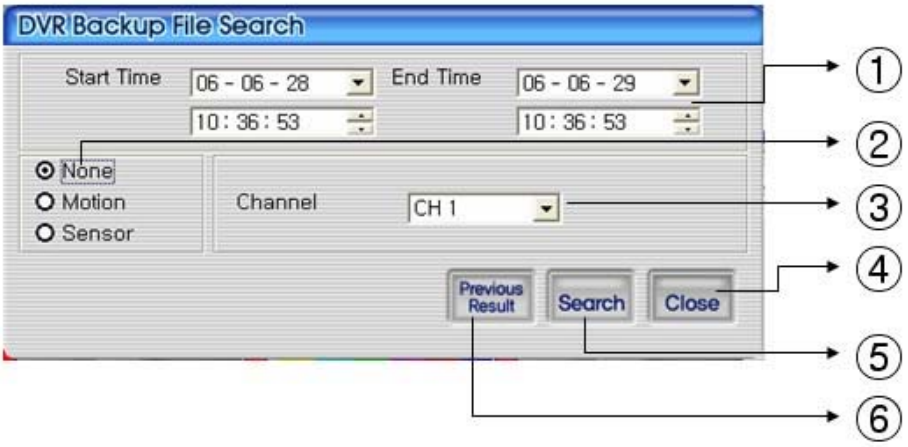
=> DVR (live viewing)

=> DVR (Recording mode)

4.3.7 DVR playback search

This button is used for playback search, playback, and backup functions for DVR and after logging in by admin.





① Enter search time from start time to end time

② Check if user want to search event condition

③ Select targeted channel for search

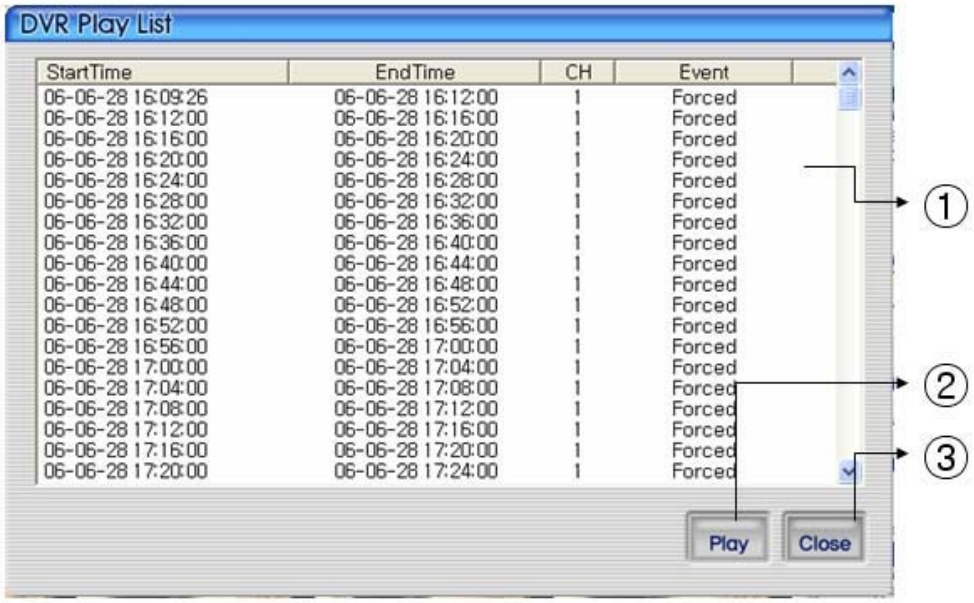
④ Close DVR playback search

⑤ Start to search by selected searching condition

⑥ Previous research result will appears

4.3.8 DVR playback search

Search data will appear list form if users push two buttons at DVR playback screen.



① DVR search files will appear recording start/end time, channel, and event information included

② Button for staring of backup. With pushing selected channel, start to playback.
Start to playback after pushing selected channel,. If do double click selected files, it starts to playback.

③ Close DVR backup window

After selecting a file at list, push play button or do double clicks in order to watch playback pictures.

① Change present mode to playback mode

② Display playback picture derived from DVR system

③ Button for reverse playback, pause, still, reverse phase, forward phase, slow, fast, previous search, next search

④ Comeback playback mode to Live viewing mode

Reverse playback button

Playback button

Temporarily pause button

Still image button

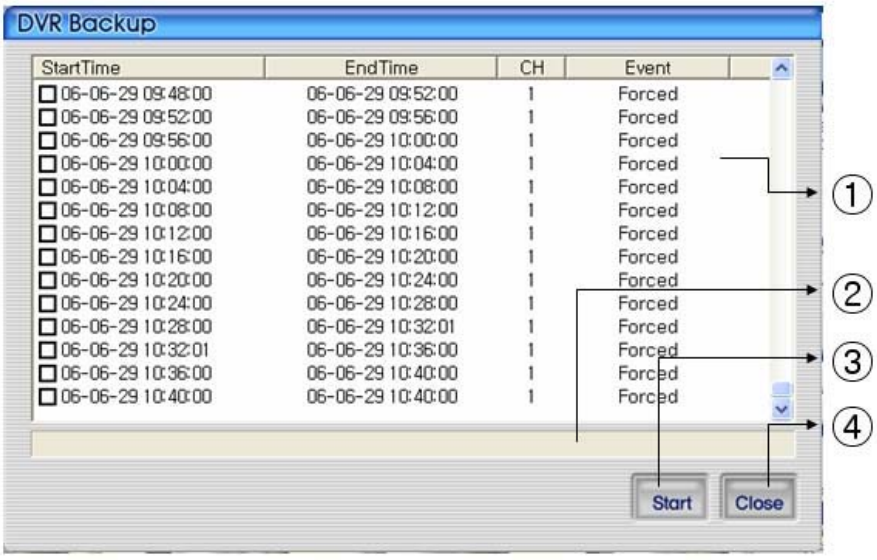
When user use temporarily pause image file move to backward

When user use temporarily pause image file move to forward

Play stored files slowly. User can control by clicking this button

Play stored files quickly. User can control by clicking this button

4.3.9 DVR backup



① DVR search files will appear recording start/end time, channel, and event information included

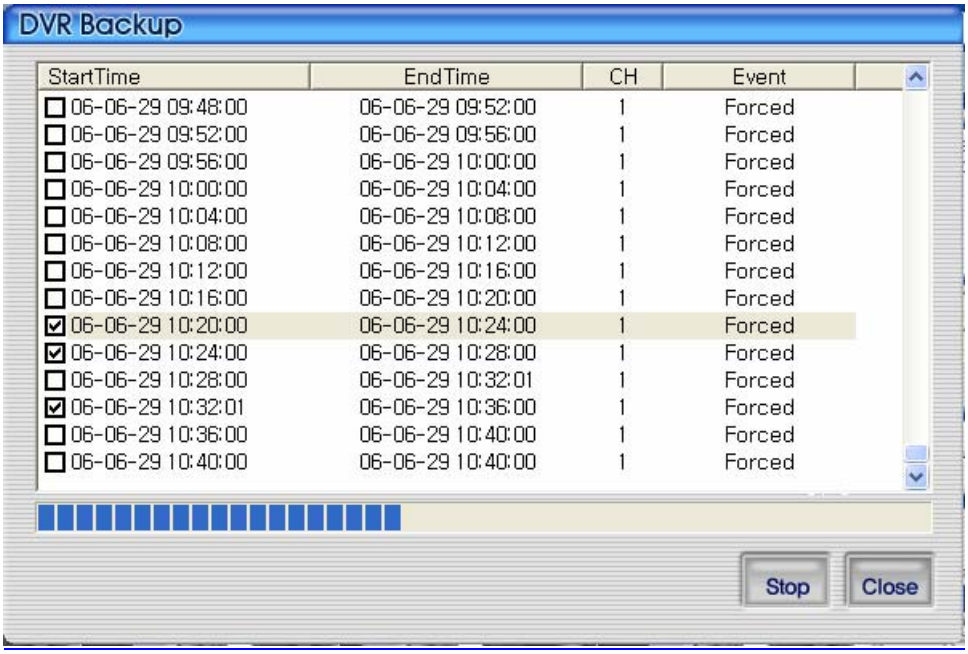
② Indicator backup progress at backup

③ Button for staring of backup. With pushing selected channel, start to backup

④ Close DVR backup window

After selecting a file at DVR backup list, user can start to backup with pushing start button

The destination of backup files is below of backup folder located in directory of program installed. After starting backup, button changes button, displays backup progress rate. Even backup, users can stop it by pushing button. Close DVR backup window with pushing button. (Even backup mode, it will be stopped & closed.)



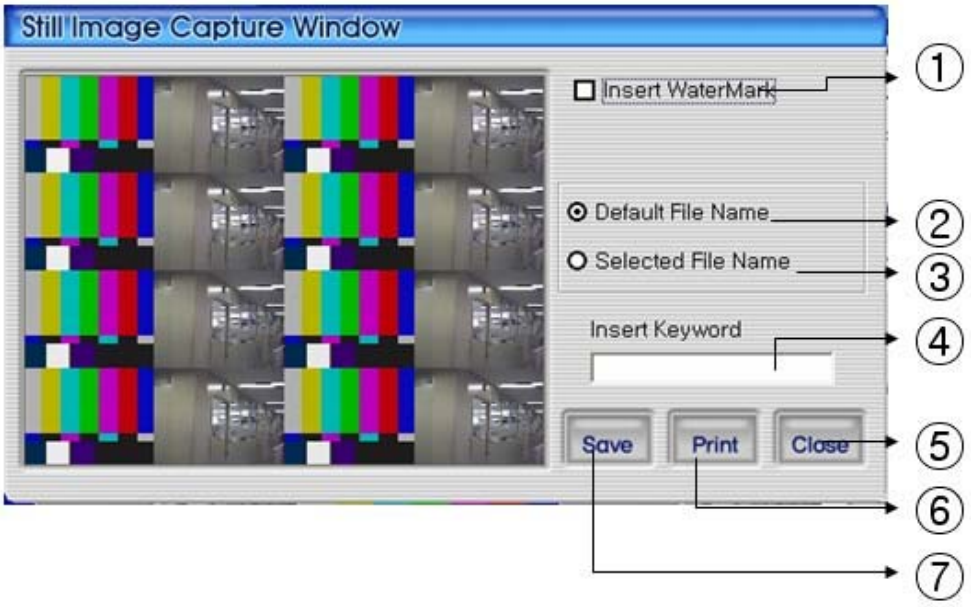
4.3.10 DVR Setting

This button is for linking into quick installation program, which is used to manage setting parameter of DVR easily. It can be activated after logging in by admin.

The setting parameter of DVR are displayed.

4.3.11 Still image Capture

Yon can save playing image such as live viewing image, DVR playback image, into still image by capture. Besides users can capture image by pushing capture button for each channel or push capture button at the foot of a screen. Still image will be saved in a path frame directory established in RAMS_M4's setup section screen. If user change storage path of still image at setup window, still image will be recorded to destination in the future.



① Select check box in order to insert watermark into still image capture

② Save still image as user defined default file name if chosen

③ Save still image as user selected new file name if chosen

④ Insert keyword to user easy searching

⑤ Close still image capture window

⑥ Print still image capture file

⑦ Save still image. The destination of recording is assigned at still image recording, folder through setup menu among RAMS_M4 program

4.3.12 Watermark insertion

Click the watermark checkbox then push the save button to save still image with watermark.

4.3.13 Printing still image

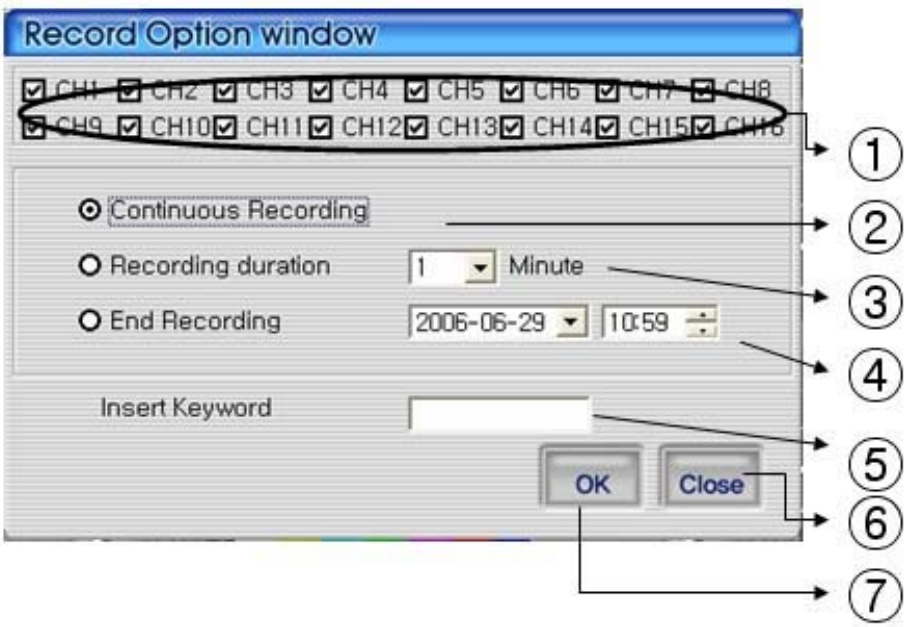
To print still image, please push

icon in capture screen.

4.3.14 Motion picture recording

With live viewing picture, motion picture recording and saving at local PC

User can record each channel by pushing record button on top right side of channel or pushing record button at below side of window. After pushing recording, record time setting window will be popup. Users can change it or not.



① Select the targeted channel changed recording time.

② Continuous recording until clients stop recording mode

③ Continuous recording until targeted minutes. Of course, it stopped manually by users

④ Continuous recording until targeted date & time. It stopped manually by users

⑤ For easy searching by keyword, client will insert keyword at search mode

⑥ Close record option window

⑦ After saving new selected recording option, automatically close it

With starting record, button will be changed to button.

In order to stop recording, users just push record button again & record. The recording destination is record directory installed in Program.

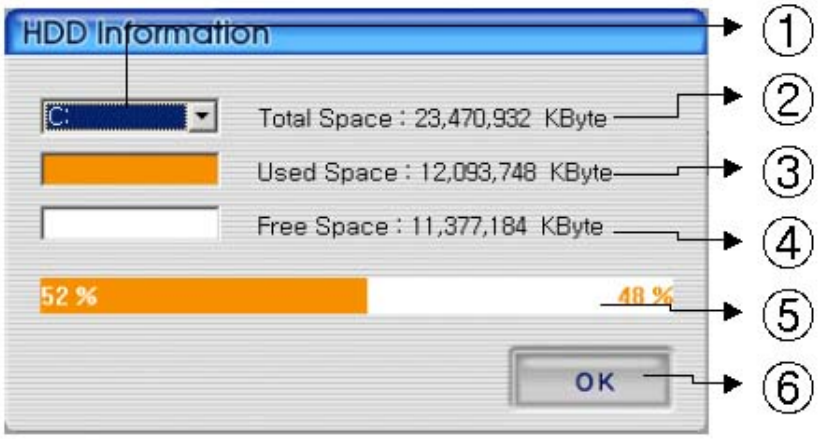
4.3.15 PAN/TILT, ZOOM/FOCUS.

These buttons are for PAN/TILT, ZOOM/FOCUS function of DVR and after logging in by admin and/or one channel selected.

4.3.16 HDD Information

Orange: used parts of HDD,

White: remaining par of HDD. Detailed HDD information will be activated on pushing this icon.



① Select hard disk

② It shows total capacity of HDD

③ It shows the used capacity of HDD used

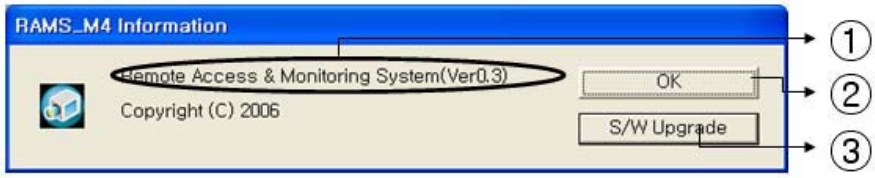
④ It shows the capacity of HDD to be used

⑤ It shows the capacity of HDD used and to be used

⑥ Close the window

4.3.17 Check the program version

Click Logo right upper part icon to check program version or do S/W upgrade of DVR system



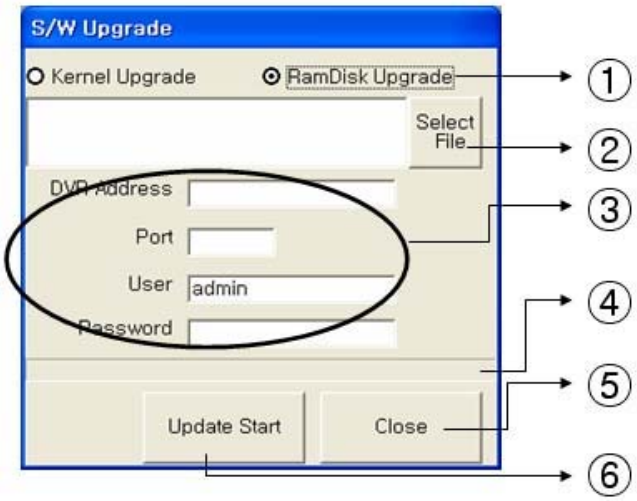
① Display the name & version of program

② Close the RAMS_M4 information window

③ Display S/W update window of DVR system

4.3.18 S/W upgrade of DVR

S/W upgrade window is activated on pushing S/W upgrade button in the program version check screen



① : Select targeted files to upgrade

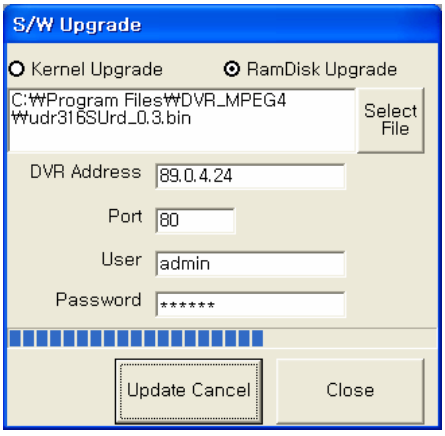
② : Select targeted files saved in local PC

③ : Enter targeted DVR information such as DVR address, Port, user, and password (admin only)

④ : Indicator of targeted file's transmission status

⑤ : Close upgrade window

⑥ : Transmit targeted files. After that, changed to upgraded cancel (cancel of upgrade transmission)



=> Display status of SW Upgrade

4.3.19 Program minimizing

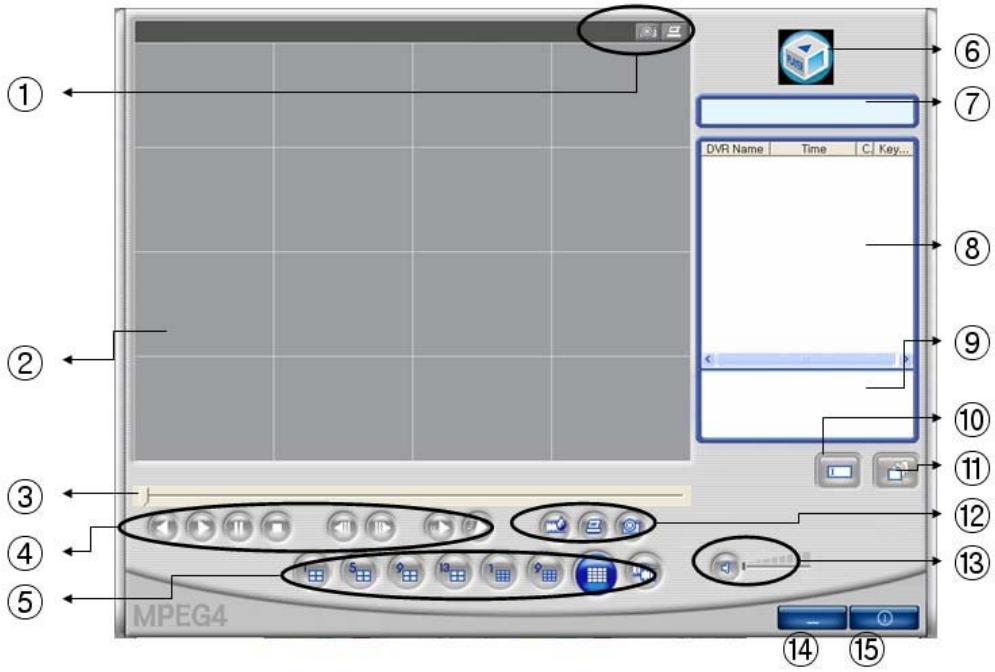
Rams_M4 program is minimized

4.3.20 Close program

Closed Rams_M4 program

4.4 UniPlayer_M4

4.4.1 Screen and button



① Button per channel (Capture, Print)

② Playback picture

③ Indicator for playback progress rate

④ Reverse playback, playback, still, pause, reverse phase, forward phase, slow, fast

⑤ Channel selection button, Panorama playback button

⑥ Click the logo to check program version

⑦ Uniplayer_M4's status

⑧ Search list

⑨ File path is displayed if selected at search list

⑩ Button for user searching

⑪ Button for directory based searching

⑫ Retrieve button for watermark, printing, Capture

⑬ Button for sound On/Off, volume adjustment

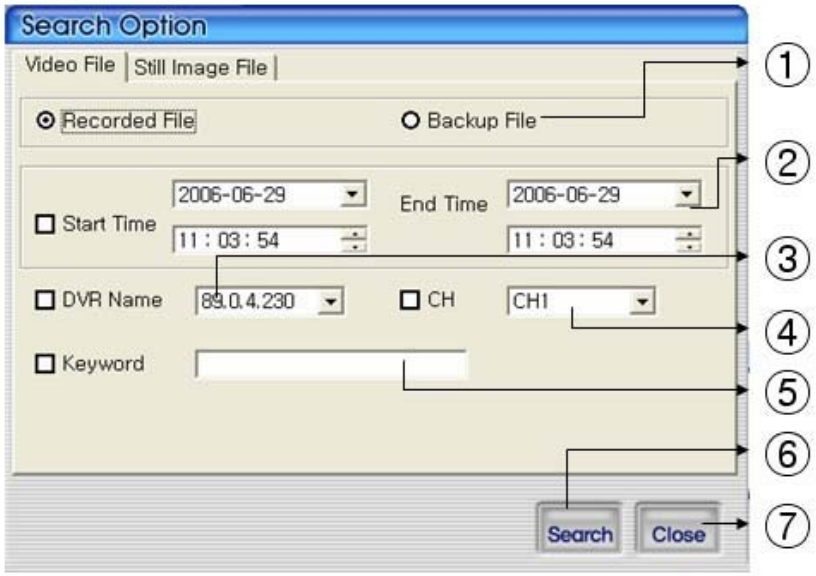
⑭ Button for minimizing

⑮ Button for closing program

4.4.2 Search

Users access to search files after push this icon. As files are default mode, without knowing of files, users can access it.

4.4.2.1 Search option from video image & backup file



① Select whether recording files at RAMS_M4 or backup files

② Enter targeted recording date for search

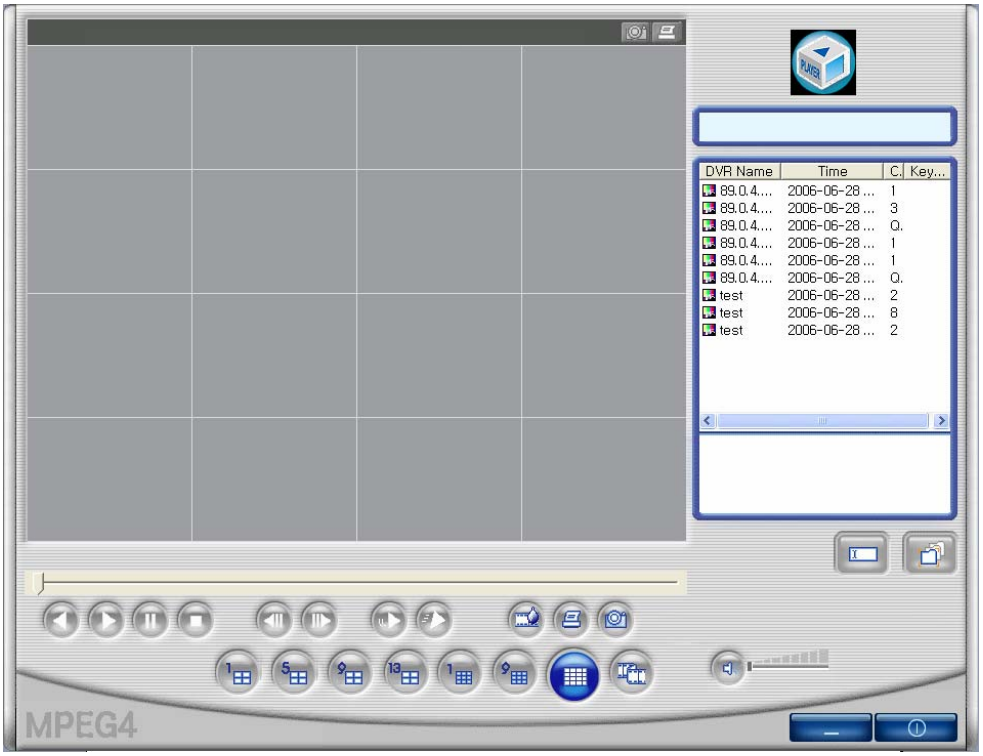
③ Enter targeted DVR name for search

④ Enter targeted channel

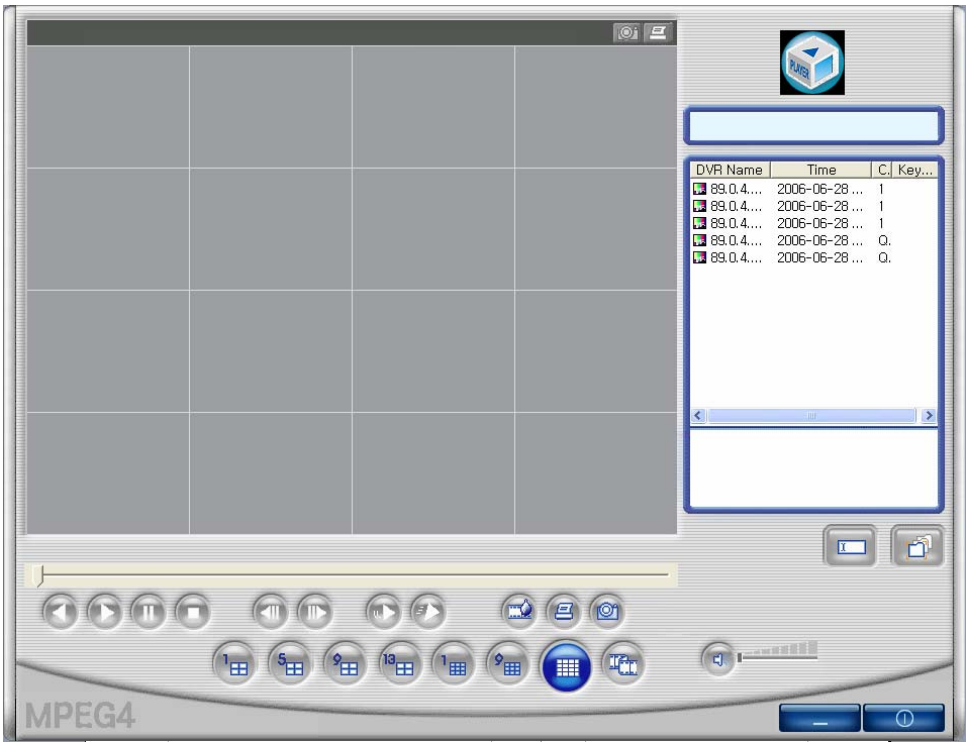
⑤ Enter keyword to classification to list

⑥ Start to search accordingly

⑦ Close search option window

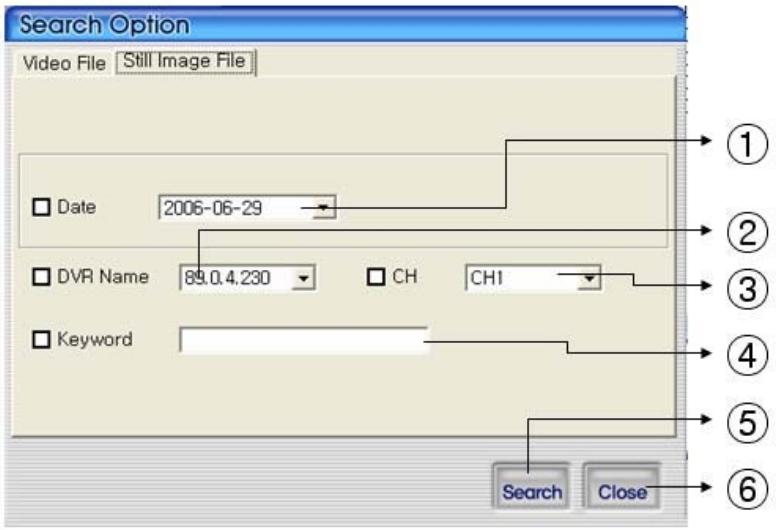


=> If there is nothing to special condition for searching, all files saved in recording folder will be displayed on search window after searched.

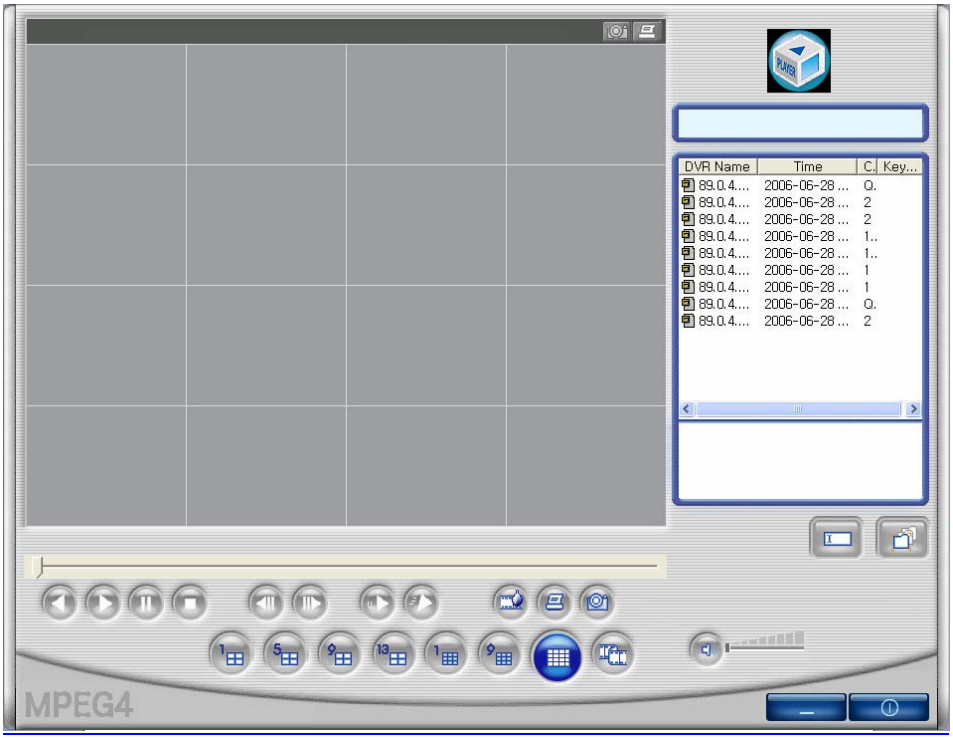


=> Search window after selected channel number 1 as search option.

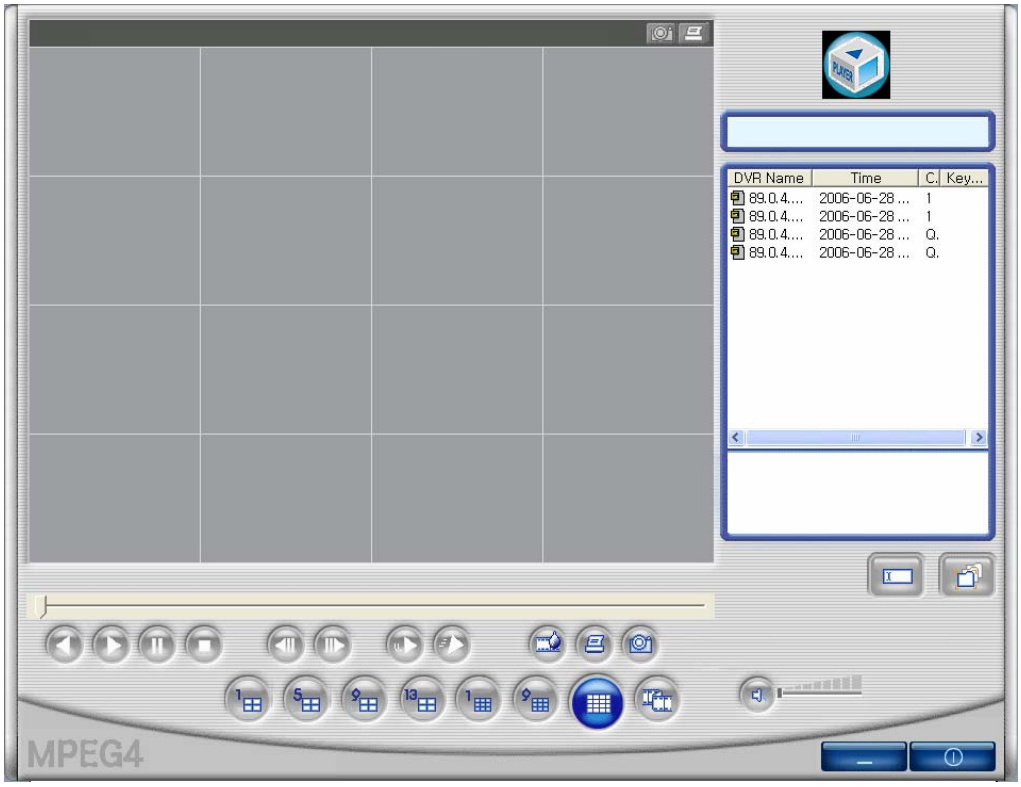
4.4.2.2 Search option for still image



① Enter targeted recording date for search
② Enter targeted DVR name for search
③ Enter targeted channel
④ Enter keyword to classification to list
⑤ Start to search accordingly
⑥ Close search option window



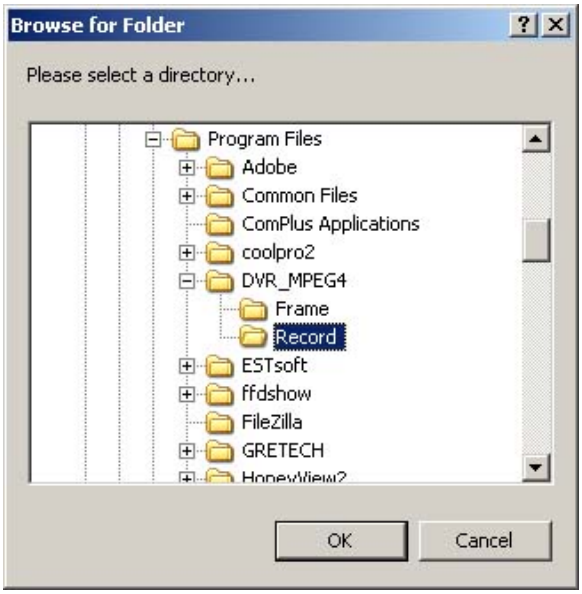
=> If there is nothing to special condition for searching, all still images saved in folder will be displayed on search window after searched.

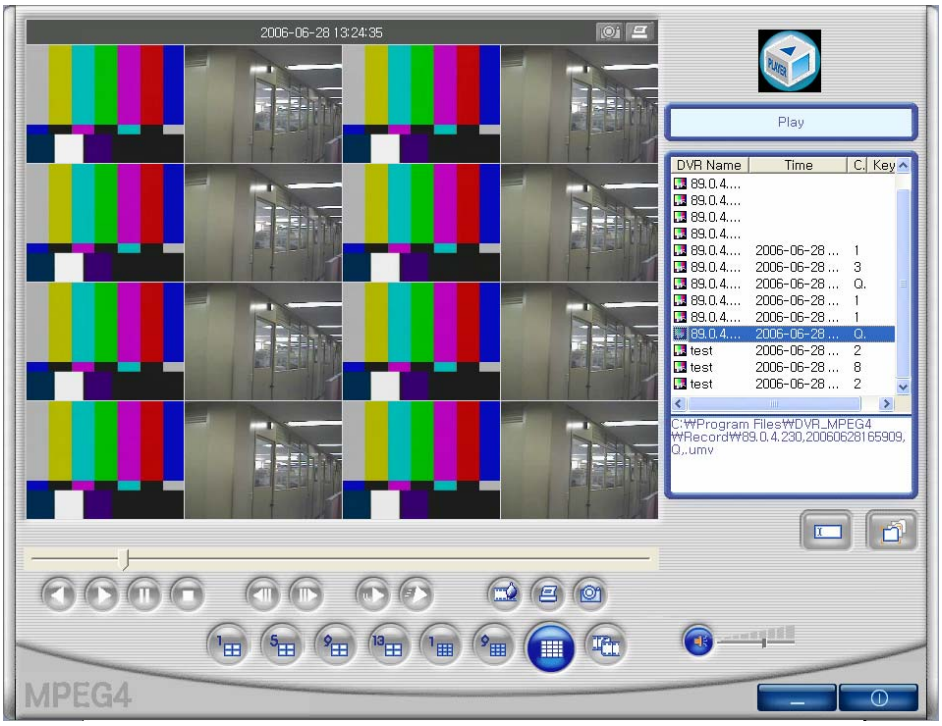


=> Search window after selected channel number 1 & selected date (Jun. 28, 2006) as search option.

4.4.3 Searching by directory

You can use it when you know the directory has AVI file or still image file. It will be set up default directory at first. After that users can choose their own directory than see all folder user want to save will be on the list.



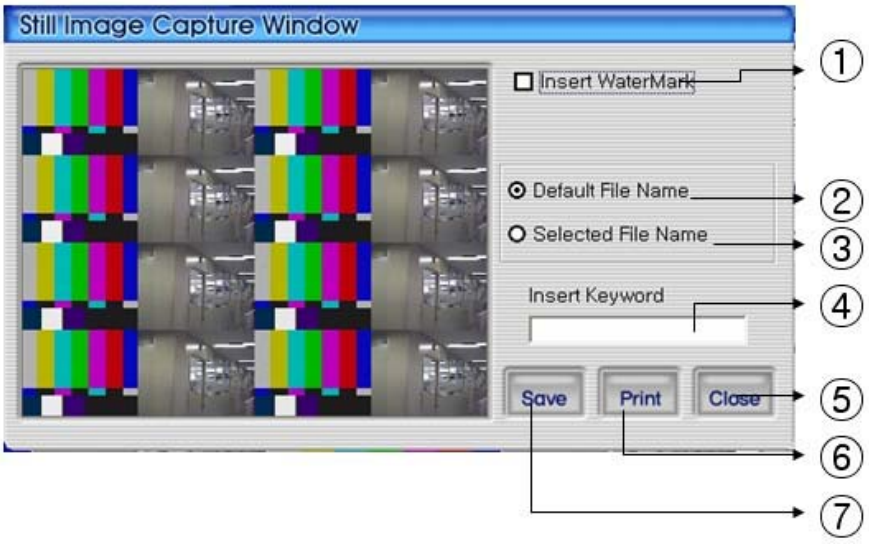


=> AVI file Playing screen by searching scene

4.4.4 Still Image Capture

Save replaying images into still image by capture. Besides users can capture image by push capture button for each channel or push capture button at the foot of a screen.

Still image will be saved in a path of which is established in RAMS_M4's setup section screen



① Select check box in order to insert watermark into still image capture

② Save still image as user defined default file name if chosen

③ Save still image as user selected new file name if chosen

④ Insert keyword to user easy searching

⑤ Close still image capture window

⑥ Print still image capture file

⑦ Save still image. The destination of recording is assigned at still image recording folder through setup menu among RAMS_M4 program

4.4.5 Input water mark

Click the Water Mark checkbox then push the save button to save still image with watermark.

4.4.6 Printing still image

To print still image, please push the

button in capture screen. Then use this button in main page. But In the motion picture state, this button only is applicable to pause or temporarily pause mode.

4.4.7 Moving picture file playback, playing, pause, temporarily pause, move by interval of frame, fast forward Playing

Playing-back image file

Playing image file

Temporarily pause image file

Pause

When user use temporarily pause image file, move to backward

When user use temporarily pause image file, move to forward.

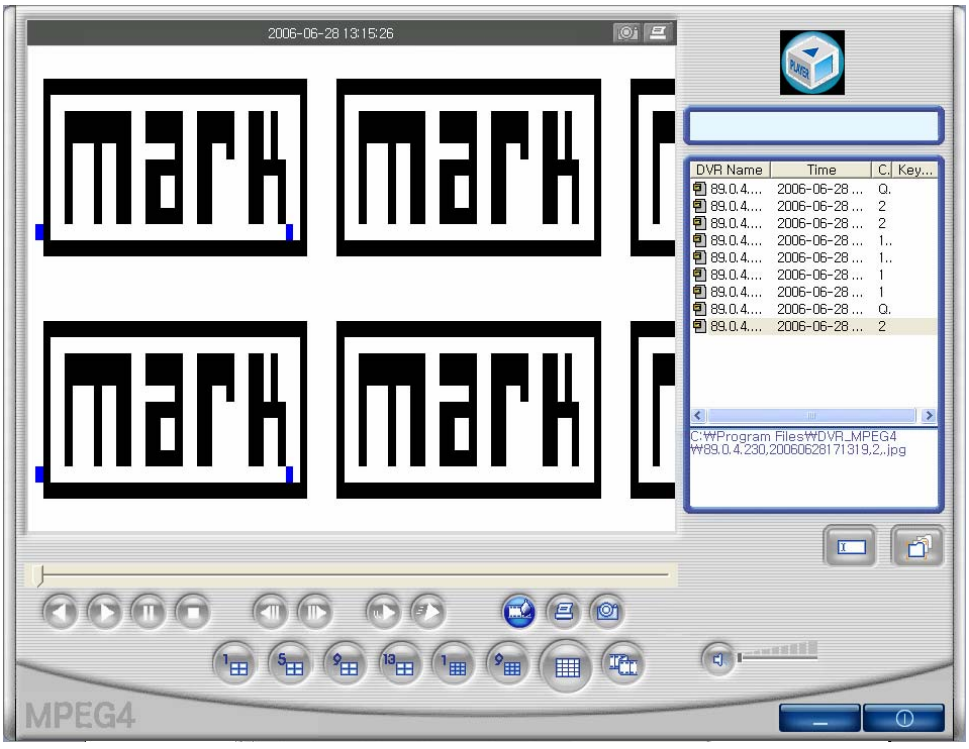
Play file slowly. Users can control by click this button.

Play file quickly. User can control by click this button.

4.4.8 Water mark drawing

When still image is display, if push this button watermark will be drawn. If you find other color except black, white, blue color, image file must get damaged. Push this button one more time, reverts to original image state.

=> Still image Display screen. Push this button , water mark will be drawn.



⇨ Watermark viewing screen. If you find other color except black, white, blue color, image file must get damaged.

4.4.9 Panorama

You can see the panorama screen when you push this button while file playing.

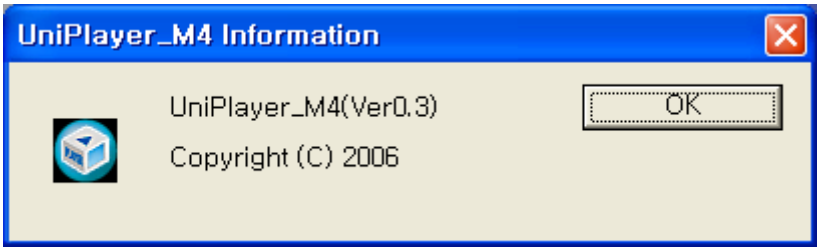
(Button will change into like this button. . And & button can help user to view screen while control screen back and forth. And click the one screen which is one of the 16 channel, you can see 640x480 image. If you want to come out of the panorama mode, click button. Then program will go back to former state.

=> Screen in panorama mode.

=> Image when click one screen in panorama mode.

4.4.10 Check the program version.

Click right part of logo to confirm version.



4.4.11 Program minimizing

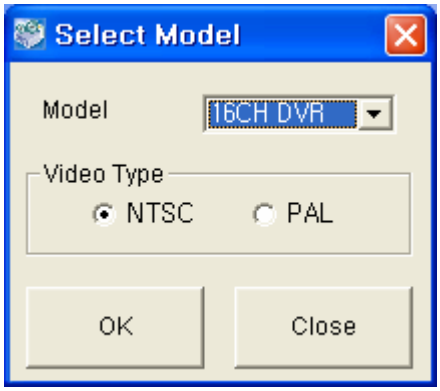
UniPlayer_M4 program is minimized

4.4.12 Close Program

Close UniPlayer_M4 program

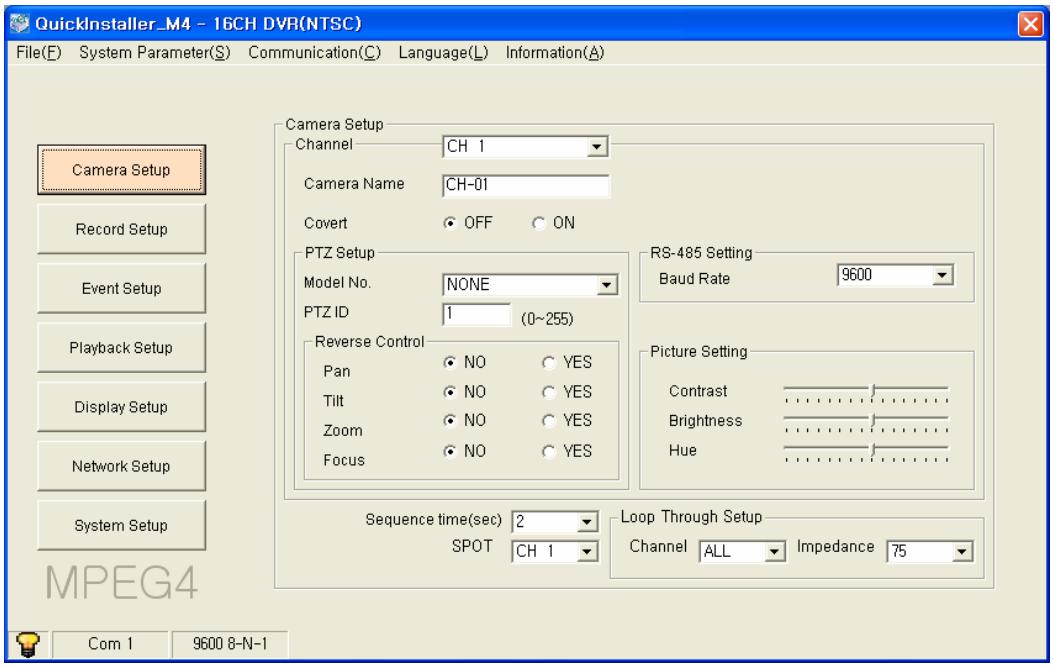
4.5 Quick Installer

4.5.1 Select model



Clicks to select DVR model name and video type in order to set system parameters.

4.5.2 System parameter setting



* Right parts on System parameter setting window is same form as Main menu used in DVR system. Users can change DVR system parameter by entering each menu.

* Main menu description

* File ->Open: Read to display saved parameter values from DVR system.

1. File ->Save: Click to save setting parameter values as file.
2. File->Close: Click to close program
3. System parameter-> Read parameters from DVR: Derive to display setting

parameter values

4. System parameter-> Write parameters to DVR: Transfer to save setting parameters of DVR.
5. System parameter->Default value setting: Initialize parameters values.
6. Communication->Network: Communicate data through network.
7. Communication->Serial: Communicate data through serial port (Setting preferable Com Port)
8. Language: Click to select preferable language
9. Information: Click to display program version information.

4.5.3 Communication over Network or serial port

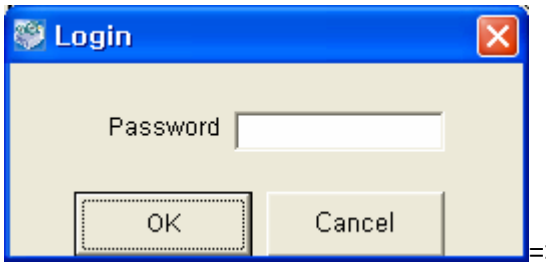
Click to open system parameter -> Write to DVR

The below window will be activated on

- After Setting system parameters
- Derive system parameters from DVR

=> Network mode as communication media

Enter assigned network access password for Admin. After authenticated, users can communication between DVR using network.



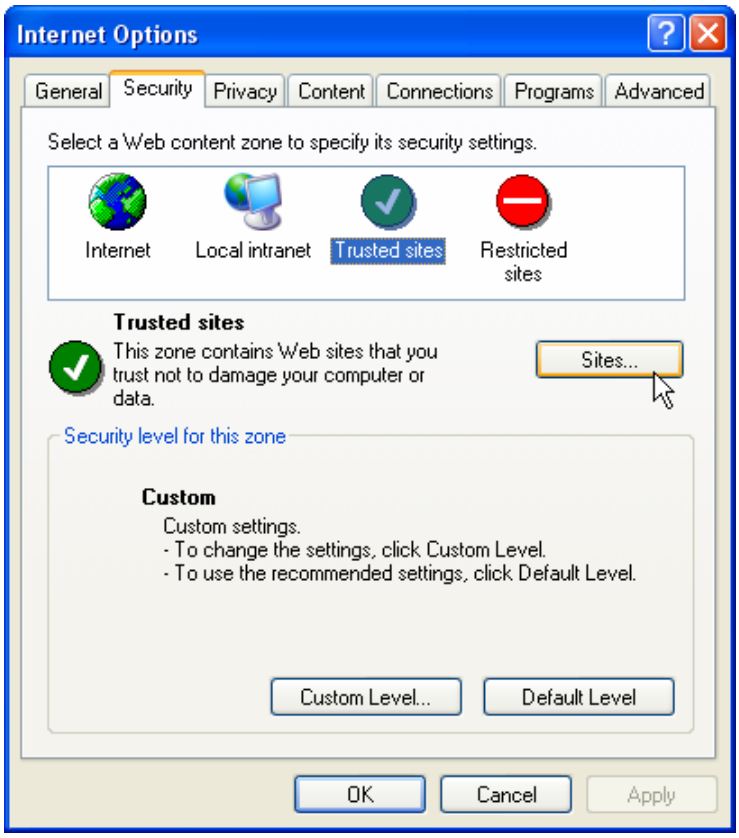
=>Serial mode as communication media

Enter assigned network access password for Admin. After authenticated, users can

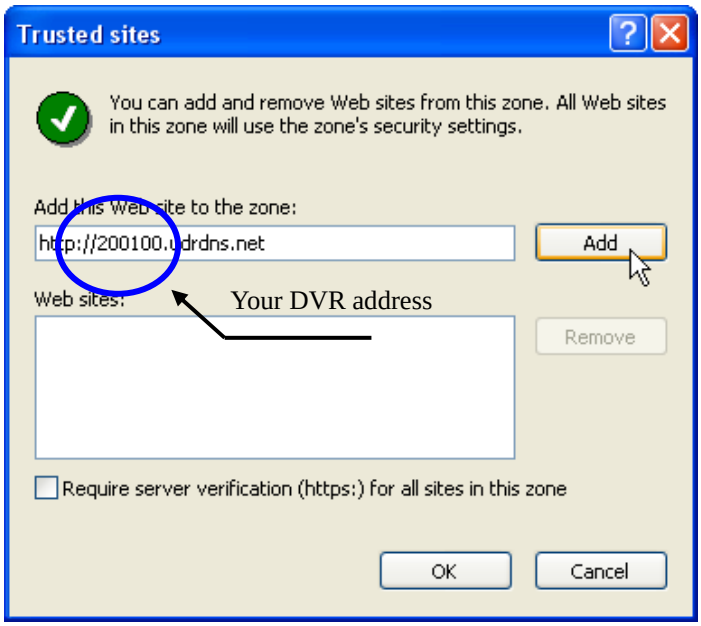
communication between DVR using serial port.

4.6 Connection by Internet Explorer

4.6.1 Security setup



In “Internet Option” Menu, Choose “Trusted sites” then click “Sites…” button,


Trusted sites
You can add and remove Web sites from this zone. All Web sites in this zone will use the zone's security settings.
Add this Web site to the zone:
http://200100.ddrdns.net
Add
Web sites:
Your DVR address
Remove
Require server verification (https:) for all sites in this zone
OK
Cancel

Add your DVR Address.(it possible “IP” or “MAC”).

4.6.2 Download ActiveX control

In order to download ActiveX control, press “confirmation” button, when the message

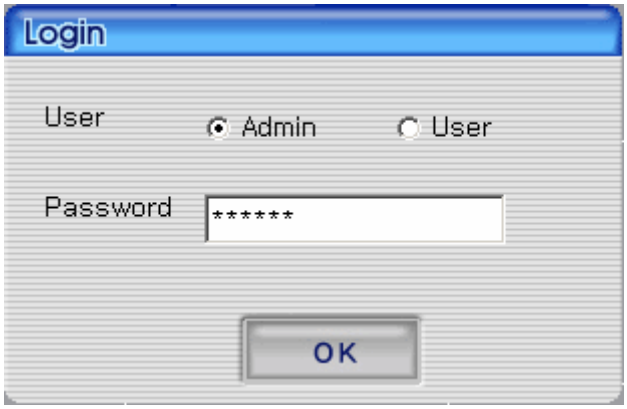
Appears, and download in the PC.

(If “cancel” button is clicked, program may not be worked)

4.6.3 Connection with DVR

Fill the address of DVR Mac address or IP up in the address window of Internet Explorer.

4.6.4 Login



Fill network password of DVR and press “OK” button, same as Rams_M4 program.

4.6.5 Connected screen

1. In the lower part of screen, there are buttons

   - button to select the screen division & button to search the moving picture..

2. In the right part of screen, there is a button to control PTZ.

   - PTZ control is available when one screen is selected,

   - In order to select one screen, double click the required channel.

4.6.6 Search

Same function as search of DVR playback search

Please refer to the article 4.3.7

4.6.7 Playback

This is the screen when it's playback.. Playback control button in the right parts has same function as DVR playback in RAMS_M4. Please refer to the article 4.3.8 (DVR manual)

5 Appendix

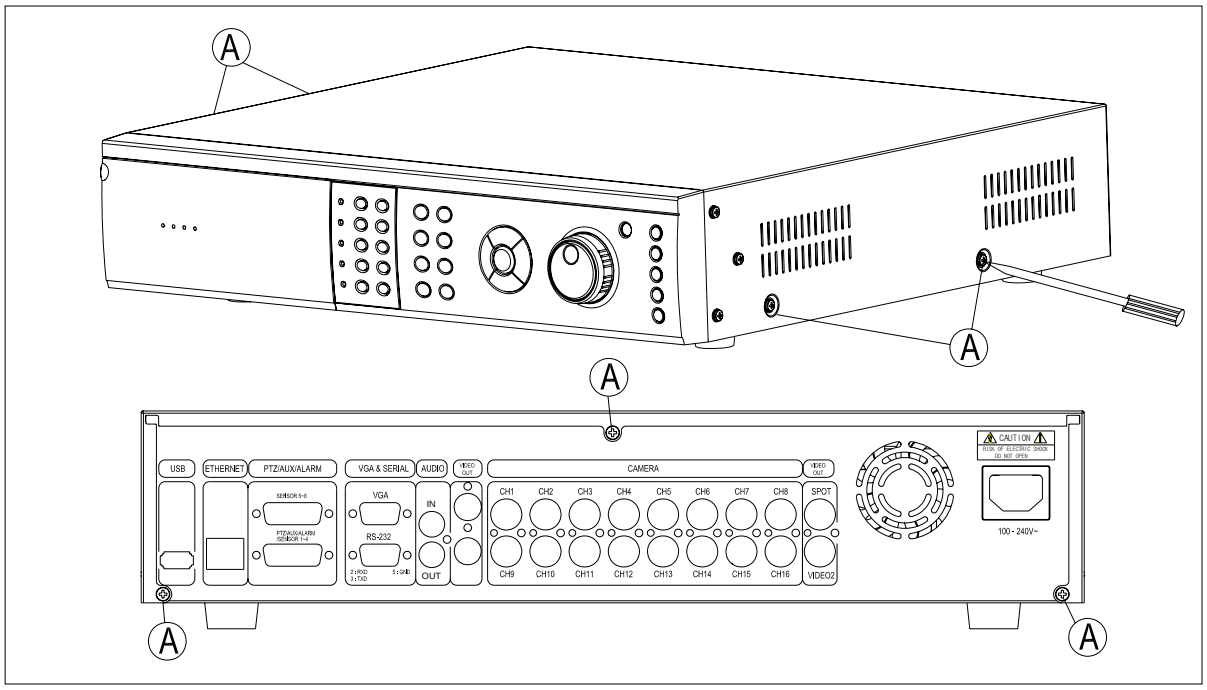
5.1 Installing HDD

5.1.1 HDD Install Methods

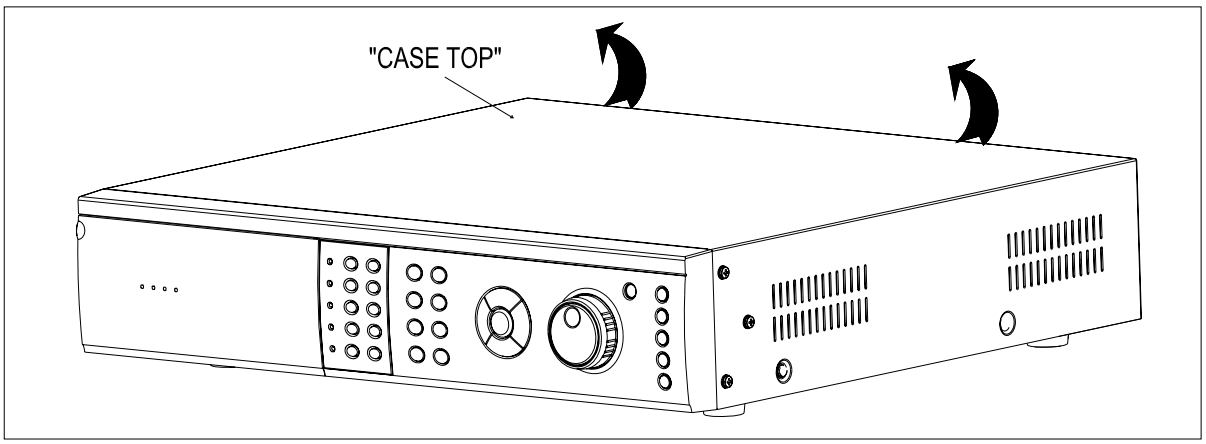
2 HDD can be installed for 8/16ch DVR.

In case that 1 HDD is installed, HDD should be set to “MASTER” or “SINGLE” mode.

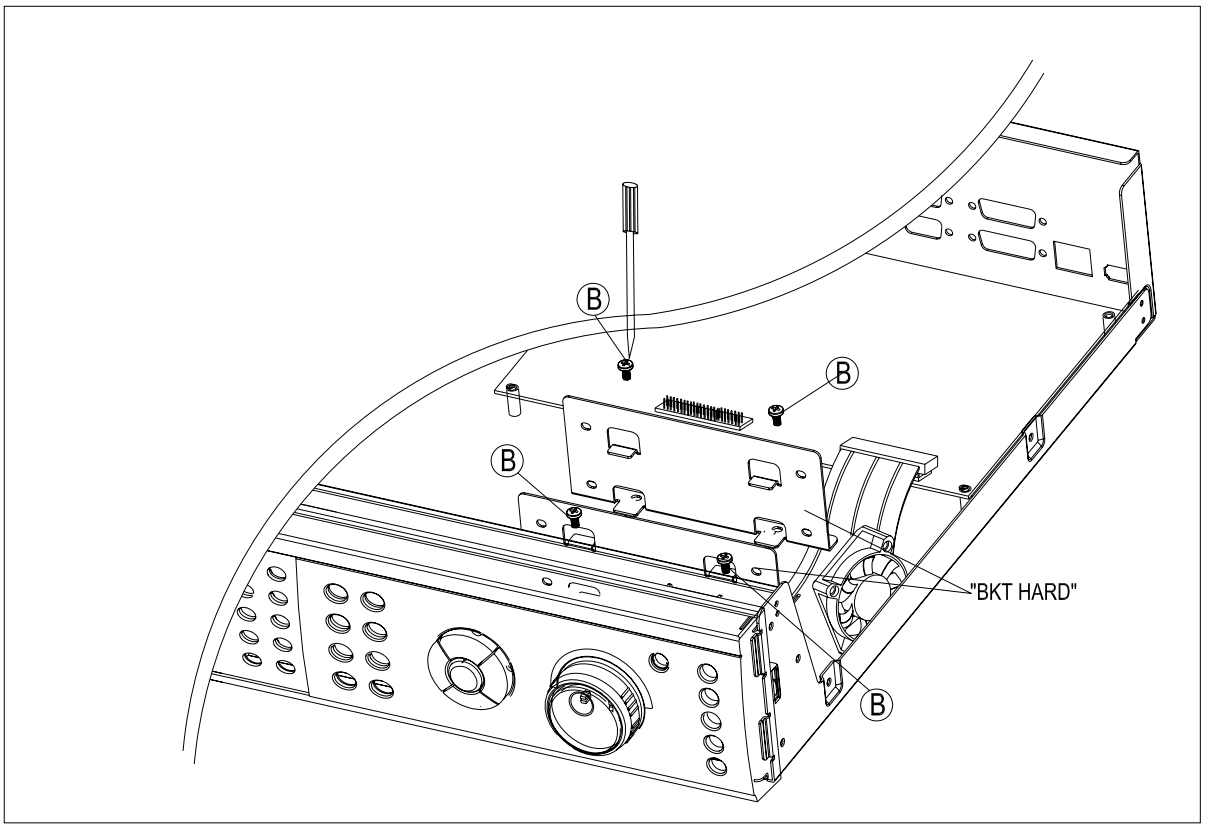
In case that 2 HDD are installed, one HDD should be set to “MASTER” and the other to “SLAVE” mode.



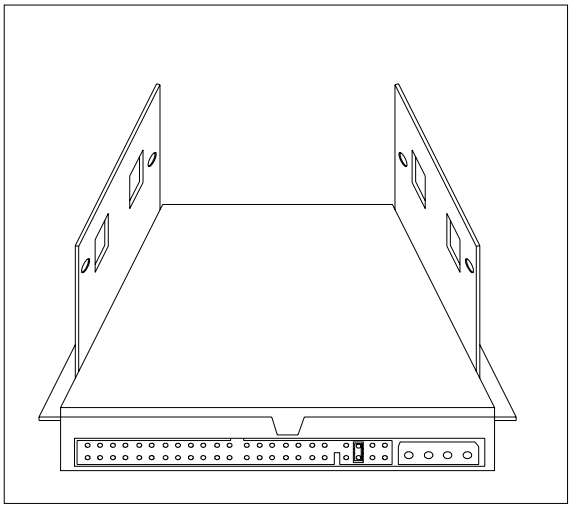
- Unlock all those Volts of “ A” with drivers.

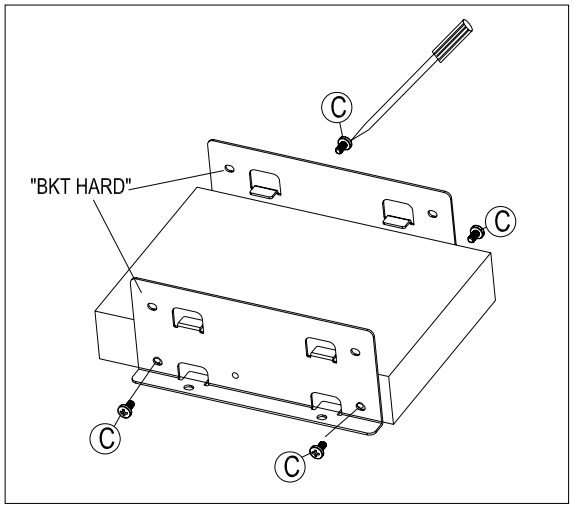


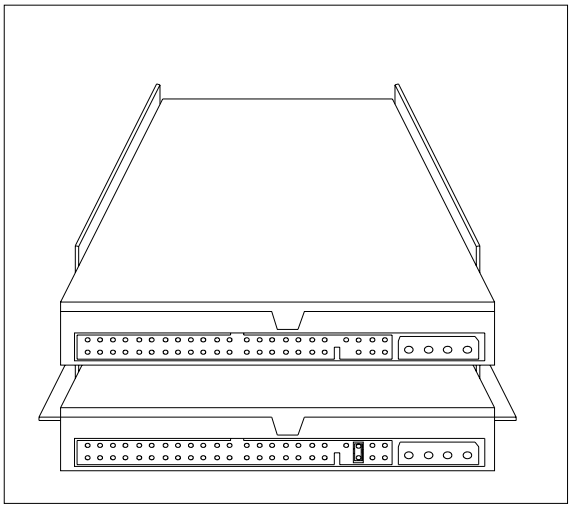
- When You lift up the back part of TOP COVER, DVR unit can be separated into TOP COVER
- BOTTOM CASE.

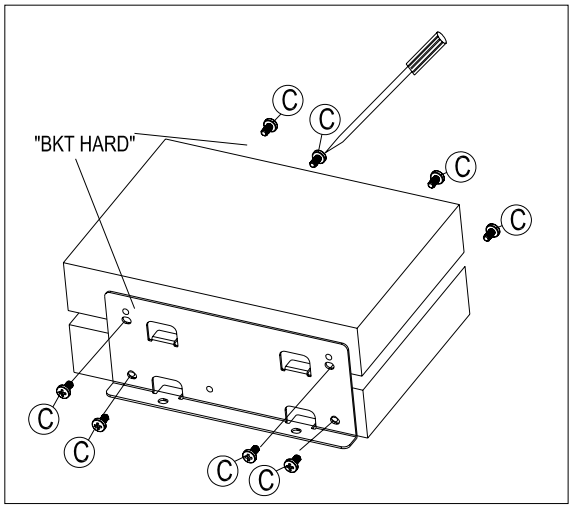


- When you look into the inside of case, you can find , assembled HDD BRACKET.
- Unlock those volts of ‘B’ part . (BRACKET separation)

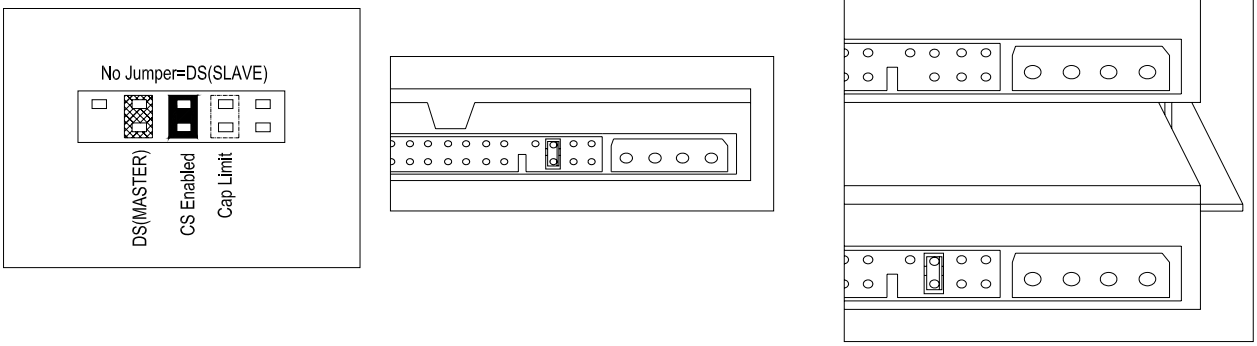




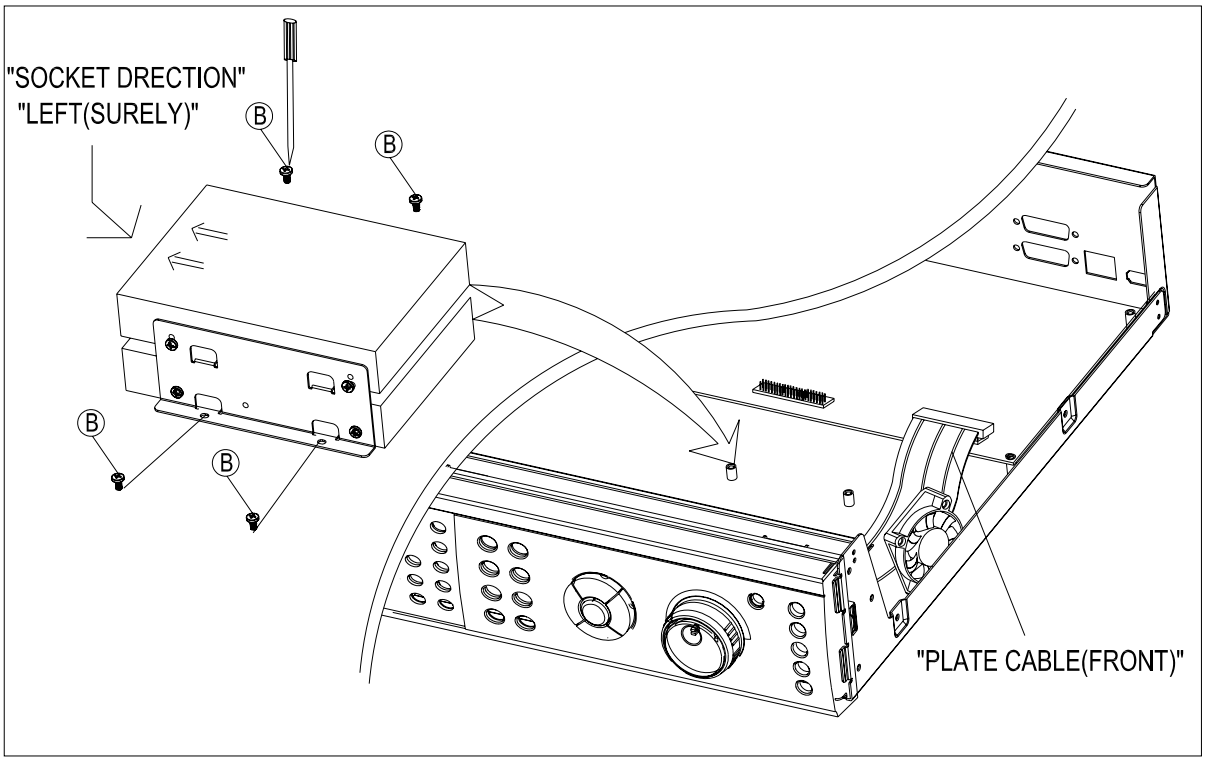




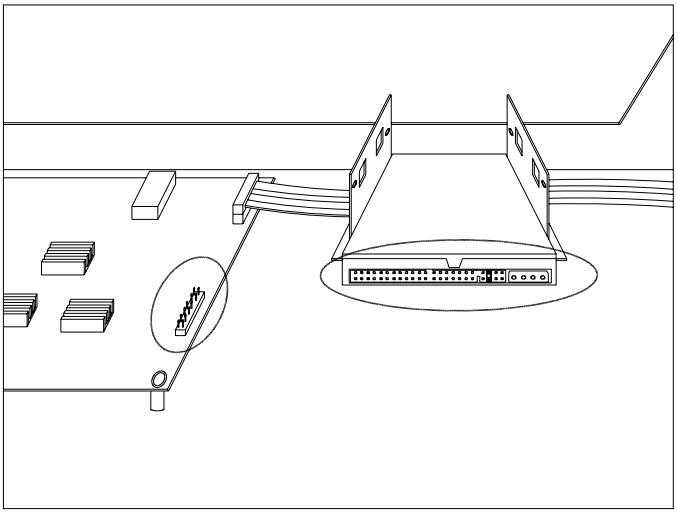
- Assemble HDD with referring to below drawing . This is a picture of ref drawing for assembling each one of two HDD .
- Those Volts used here are M3.5 x 5L HDD assembly volts (All are included IN Package when you purchase units or HDD)

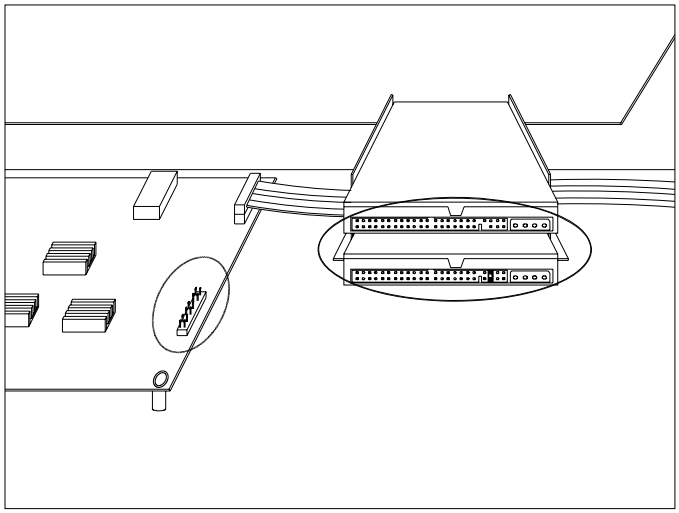


- You should do HDD JUMPER setting before or after HDD & BRACKET. This setting methods are different according to HDD manufacturer.
- Generally you can find some setting information on the top of HDD, you can follows those instructions.
- In case of one HDD installation, set HDD to ‘MASTER’ or ‘SINGLE’ .
- In case of two HDD, one HDD set to ‘MASTER’, the other HDD set to ‘SLAVE’.

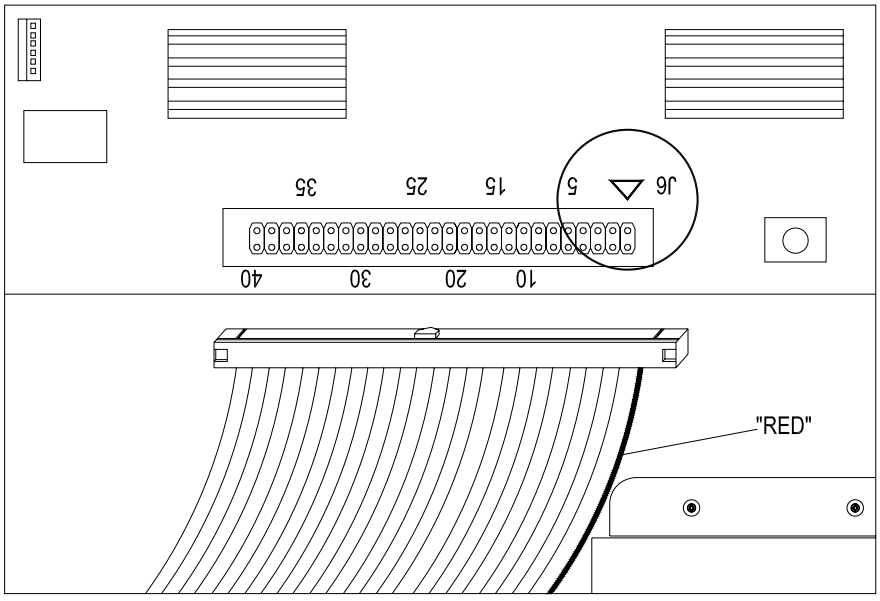


- If you finish the installation of HDD& BRACKET, Put those finished HDD into DVR.
- You can do it as above drawing. Pay attention to the direction of HDD connector.
- Be careful of front panel cable might be stuck in HDD set and DVR.
- Volts can be used same ones when you disassembled.





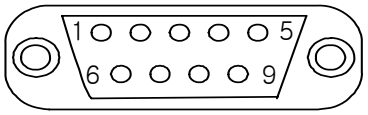
- A drawing of installation of HDD set in DVR. Pay attention to direction.
- It can be connected to connector & HDD set of circled DVR main board.



- This is a drawing to show how to connect HDD set and DVR main board.
- You can find a red line which is a basic line and it should be matched with triangle shape of DVR main board.

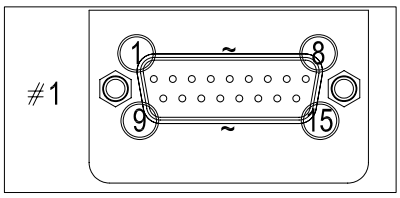
5.2 Terminal Information

5.2.1 DSUB-9P (RS-232)

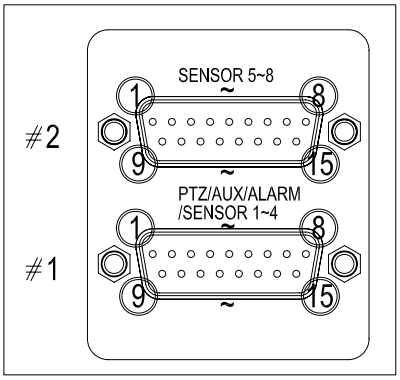


No	Name	Description
2	RXD	Receive Data
3	TXD	Transmit Data
5	GND	Signal Ground

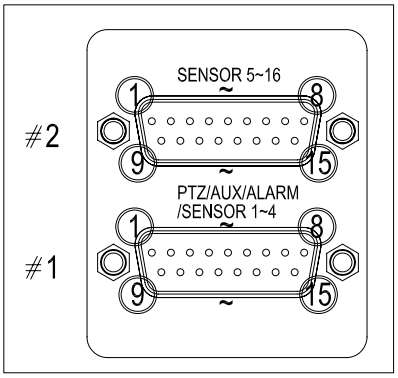
5.2.2 DSUB-15P (PTZ / AUX / ALARM / SENSOR)



< 4ch DVR >



< 8ch DVR >



< 16ch DVR >

	No	Name	Description	No	Name	Description
#1	1	RS-485+	RS-485 Transmit Data +	9	Alarm Out	Alarm Out (NO)
	2	RS-485-	RS-485 Transmit Data -	10	Alarm Out	Alarm Out (COM)
	3	AUX1	Auxiliary In Port (RSI, ARI, RONOFFI)*	11	Alarm Out	Alarm Out (NC)
	4	AUX2		12	Sensor1	NO/NC
	5	AUX3	Auxiliary Out Port (ARO, RSTO, ERRO, DFO, RSO)*	13	Sensor2	
	6	AUX4		14	Sensor3	
	7	AUX5		15	Sensor4	
	8	GND	Signal Ground			

	No	Name	Description	No	Name	Description
#2	1	Sensor5	NO/NC	9	Sensor13	NO/NC
	2	Sensor6		10	Sensor14	
	3	Sensor7		11	Sensor15	
	4	Sensor8		12	Sensor16	
	5	Sensor9		13	GND	Signal Ground
	6	Sensor10		14	GND	Signal Ground
	7	Sensor11		15	GND	Signal Ground
	8	Sensor12				

4ch DVR: 4 sensors(15pin D-sub is only one of back part)

8ch DVR: 8sensors, 16ch DVR: 16sensors

* Abbreviation

RSI	Record Start In	RSTO	Record Start Out
RI	Alarm Reset In	ERRO	Error Out
RONOFFI	Record On Off In	DFO	Disk Full Out
ARO	Alarm Record Out	RSO	Record Status Out

5.3 Factory Default Value

5.3.1 Main Menu

Menu				Default Vale	Remarks
Main Menu	**Sub Menu1**	**Sub Menu 2**	**Sub Menu 3**		
Camera Setup	Channel	Channel No		**CH-1~CH-16**	
	Camera Name			**CH-1~CH-16**	
	Covert			**OFF**	
	Picture Setting	Contrast		**9 Level**	Max. 16 Levels
		Brightness		**9 Level**	
		Hue		**9 Level**	
	PTZ setup	Model No		**NONE**	URX-500, PELCO-D, SENSORMATIC, VICON, SUNGJIN MRX-1000 SRX-100B, HITRON, SPECO CVC-927PTZ, DMP23-H2, ELMO, LG-MULTIX
		PTZ ID		**Channel No**	
		Reverse Control	Pan	**NO**	
			Tilt	**NO**	
			Zoom	**NO**	
			Focus	**NO**	
		RS-485 Setting	Baud Rate	**9600**	2400, 4800, 9600, 38400, 57600, 115200
	SPOT			**CH 1**	
	Sequence time			**2 sec**	
	Loop Through set	Channel		**ALL**	1~16
		Impedance		**75**	
Record Setup	Resolution			**360x240(NTSC)**	360x240, 720x240
				360x288(PAL)	360x288, 720x288
	Audio sync			**NONE**	
	Channel	Channel No		**CH 1**	
		Quality		**FINE**	4 Levels
		Frame rate (FPS)		**7**	
		Record mode		**MANUAL**	
Event Setup	Motion Detection Setting	Channel		**CH-1**	
		Sensitivity		**5 Level**	8 Levels

		Detection Zone		**ALL**	
	Sensor Setting	Sensor No		**Sensor 1**	
			Sensor Type	**N.O.**	N.O. / N.C.
			Channel Link	**NONE**	CH1~CH16
	Alarm In/Output	Sensor		**Sensor 1**	
			Alarm Output	**OFF**	
		Motion		**CH 1**	
			Alarm Output	**OFF**	
		Relay time		**0 sec**	0, 5, 10, 15, 20, 25, 30, 35, 40, 45, 50, 55, 60
	Post-Alarm Record			**10 sec**	10, 20, 20, 40, 50, 60 sec
	FTP Setting	FTP Server Address		**0.0.0.0**	
		ID		**anonymous**	
		Password		**Blank**	
		Target Path		**/**	
		FTP Length of Image		**5 sec**	5, 6, 7, 8, 9, 10 sec
	FTP Trigger Setting	Channel		**CH 1**	
			Sensor	**OFF**	
			Motion	**OFF**	
	E-Mail Address Setting	Receiver Address	1~4	**Blank**	
		Sender Address	1	**Blank**	
	E-Mail Setting	Send (period)		**NO**	
		Prohibition Setting		**NO**	
			Start hour	**01**	
			End hour	**01**	
		SMTP Server Address		**0.0.0.0**	
		Authentication	YES / NO	**NO**	
			Password	**Blank**	
	Event Log			**CH 1**	
Playback Setup	Channel			**All**	
	Starting point			**30min ago**	
	Audio			**ON**	
Display Setup	Camera name			**ON**	
	Date / Time			**ON**	
	HDD Status			**ON**	
	Borders			**ON**	
	Alpha Blending			**5 Level**	8 Levels
	VGA Setting			**Mode 1**	Mode 1, 2, 3
Network Setup	DDNS Setup	DDNS Server Address 1		**211.139.14.109**	
		Port		**7100**	
		DDNS Server Address 2		**211.104.85.235**	
		Port		**7100**	
	Remote Connection Logging Password	Admin		**111111**	
		User		**111111**	

	Network Type Setup	STATIC	DDNS Link	**OFF**	
			Port	**80**	
			IP Address	**192.168.1.200**	
			Subnet Mask	**255.255.255.0**	
			Gateway	**192.168.1.1**	
			DNS IP	**0.0.0.0**	
		DHCP	Port	**80**	
		PPPoE	Port	**80**	
			ID	**dvr**	Registered ID
			Password	**111111**	Registered PW
			DNS IP	**0.0.0.0**	
System Setup	DVR name			**16CH DVR**	
	System password	Password setting		******	111111
		Password Apply	Record Stop	**OFF**	
			Menu enter	**OFF**	
			System off	**ON**	
		Auto Key Lock		**OFF**	
	Time / Date	Time Setup (h/m/s)		**Current Time**	
		Date Setup		**Current Date**	
		Format	Time format	**24**	
			Date Format	**YYYY/MM/DD**	
		Day light saving time	ON / OFF	**0FF**	
			Start date (m/d)	**01/01**	
			End date (m/d)	**01/01**	
			Apply Hour	**00**	
	Buzzer	Sensor		**OFF**	
		Motion		**OFF**	
		Video Loss		**OFF**	
	Language			**ENGLISH**	
	HDD setup	Mounted HDD		**1 or 2**	No of HDD shows
		Write Mode		**Overwrite**	Overwrite/Once
		Force Deletion		**OFF**	1~100
		HDD 1	Capacity	**Used Cap. / Total Cap.**	
			Format		
		HDD 2	Capacity	**Used Cap. / Total Cap.**	
			Format		
	AUX Port	Active	HIGH / LOW	**HIGH**	
		Function	IN	**UNUSED**	
			Out	**UNUSED**	
	Factory default				
	S/W Upgrade	Ramdisk			
		Kernel			
Backup	Device	USB / CD-RW		**USB**	
	Start time			**Date : Date of Yesterday** **Time : Current Time**	
	End time			**Date : Date of Today** **Time : Current Time**	
	Channel			**CH1**	
	Event			**NONE**	
	Format				CD-RW only
System Log					

System info	Video type			**Current Type**	NTSC, PAL
	H/W version			**0.9.1**	Can be changed to Improve the function
	S/W version			**1.1-2418**	
	Kernel version			**2.4.17_2**	
	Mac Address			**00:09:F8:XX:XX:XX**	
	Audio			**Support**	Depends on software version
	Language			**English French German Japanese Korean Spanish**	Depends on software version

5.3.2 Search Menu

Menu				Default Value	Ref.
Main Menu	Sub menu1	Sub menu2	Sub menu3		
Search	Calendar Search			CURRENT SYSTEM DATE	
	Event Search	START TIME		DATE : One day before Time : Current system time	
		END TIME		Date : Current System date Time : Current system time	
		CHANNEL		CH1	
	Still Image Search				

5.4 Protocol

5.4.1 Code table

No	Protocol	Description	Remarks
1	kmute	Audio Mute	
2	krec	Record	
3	khdd	HDD Information	
4	knet	Network user information	
5	klog	Log Display	
6	kinfo	System Information	
7	knum1	Number 1	
8	knum2	Number 2	
9	knum3	Number 3	
10	knum4	Number 4	
11	knum5	Number 5	
12	knum6	Number 6	
13	knum7	Number 7	
14	knum8	Number 8	
15	knum9	Number 9	
16	knum0	Number 0	
17	kseq	Sequence	
18	kmulti	Multi	
19	klock	Lock	
20	kdvr	DVR	
21	ksearch	Search	
22	kmenu	Menu	
23	kup	Up	
24	kdown	Down	
25	kleft	Left	
26	kright	Right	
27	kok	Ok	
28	krplay	R.Play	
29	kstop	Stop	
30	kplay	Play	
31	kpause	Pause	
32	kptz	PTZ	
33	kfrz	Freeze	
34	kzoom	Zoom	
35	kosd	OSD	
36	k4ch	4ch Division	
37	k6ch	6ch Division	
38	k8ch	8ch Division	
39	k16ch	16ch Division	
40	kshold	Shuttle Hold	
41	ksr8	Shuttle Right 8Step	
42	ksr7	Shuttle Right 7Step	
43	ksr6	Shuttle Right 6Step	
44	ksr5	Shuttle Right 5Step	
45	ksr4	Shuttle Right 4Step	
46	ksr3	Shuttle Right 3Step	
47	ksr2	Shuttle Right 2Step	
48	ksr1	Shuttle Right 1Step	
49	ks0	Shuttle Right 0Step	

50	ks1	Shuttle left 1Step	
51	ks2	Shuttle left 2Step	
52	ks3	Shuttle left 3Step	
53	ks4	Shuttle left 4Step	
54	ks5	Shuttle left 5Step	
55	ks6	Shuttle left 6Step	
56	ks7	Shuttle left 7Step	
57	kjleft	Jog left	
58	kjright	Jog right	
59	kpower	Power	

5.4.2 Usage

- System protocol to control DVR from remote client software installed in PC or remote controller.
- It maps button function of remote controller with front key in the front panel of DVR. If user add English letters assigned protocol paragraph and \n(new line and transmit ASCII Code form, DVR will be activated same as for user to push one of pad or remote controller.

5.5 Recording mode, Quality, FPS, HDD time table

TV System	Resolution	Quality	Frame Rate	Recording time by HDD (1ch basis)		
				200GB	300GB	500GB
N T S C	360*240	Super Fine	30 FPS	296.60	444.90	741.49
			15 FPS	576.09	864.14	1440.23
			8 FPS	809.49	1214.23	2023.72
			6 FPS	991.77	1487.65	2479.42
			4 FPS	1334.20	2001.30	3335.50
			2 FPS	2122.28	3183.42	5305.70
			1 FPS	3592.98	5389.47	8982.46
		Fine	30 FPS	588.14	877.71	1462.86
			15 FPS	1058.40	1587.60	2645.99
			8 FPS	1412.41	2118.62	3531.03
			6 FPS	1735.59	2603.39	4338.98
			4 FPS	2238.25	3357.38	5595.63
			2 FPS	3385.12	5077.69	8462.81
			1 FPS	5389.47	8084.21	13473.68
		Enhanced	30 FPS	894.32	1341.48	2235.81
			15 FPS	1511.44	2267.16	3778.60
			8 FPS	2037.81	3056.72	5094.53
			6 FPS	2512.88	3769.33	6282.21
			4 FPS	3175.19	4762.79	7937.98
			2 FPS	4654.55	6981.82	11636.36
			1 FPS	6826.67	10240.00	17066.67
		Normal	30 FPS	1190.70	1786.05	2976.74
			15 FPS	2058.29	3087.44	5145.73
			8FPS	2677.12	4015.69	6692.81
			6 FPS	3276.80	4915.20	8192.00
			4 FPS	4096.00	6144.00	10240.00
			2 FPS	5851.43	8777.14	14628.57
			1 FPS	8031.37	12047.06	20078.43

TV System	Resolution	Quality	Frame Rate	Recording time by HDD (1ch basis)		
				200GB	300GB	500GB
N T S C	720*240	Super Fine	30 FPS	250.37	375.55	625.92
			15 FPS	470.80	706.21	1177.01
			8 FPS	651.19	976.79	1627.98
			4 FPS	1047.57	1571.36	2618.93
			3 FPS	1374.50	2061.74	3436.24
			2 FPS	1612.60	2418.90	4031.50
			1 FPS	2608.92	3913.38	6522.29
		Fine	30 FPS	311.72	467.58	779.30
			15 FPS	580.99	871.49	1452.48
			8 FPS	787.69	1181.54	1969.23
			4 FPS	1272.05	1908.07	3180.12
			3 FPS	1638.40	2457.60	4096.00
			2 FPS	1950.48	2925.71	4876.19
			1 FPS	3079.70	4619.55	7699.25
		Enhanced	30 FPS	471.89	707.83	1179.72
			15 FPS	839.34	1259.02	2098.36
			8 FPS	1147.34	1721.01	2868.35
			4 FPS	1757.94	2636.91	4394.85
			3 FPS	2262.98	3394.48	5657.46
			2 FPS	2608.92	3913.38	6522.29
			1 FPS	4055.45	6083.17	10138.61
		Normal	30 FPS	626.30	939.45	1565.75
			15 FPS	1101.08	1651.61	2752.69
			8 FPS	1437.19	2155.79	3592.98
			4 FPS	2262.98	3394.48	5657.46
			3 FPS	2864.34	4296.50	7160.84
			2 FPS	3225.20	4837.80	8062.99
			1 FPS	4818.82	7228.24	12047.06

TV System	Resolution	Quality	Frame Rate	Recording time by HDD (1ch basis)		
				200GB	300GB	500GB
P A L	360*288	Super Fine	25 FPS	307.28	460.92	768.19
			12 FPS	552.02	828.03	1380.05
			8 FPS	706.21	1059.31	1765.52
			6 FPS	910.22	1365.33	2275.56
			4 FPS	1194.17	1791.25	2985.42
			2 FPS	1828.57	2742.86	4571.43
			1 FPS	3034.07	4551.11	7585.19
		Fine	25 FPS	587.66	881.49	1469.15
			12 FPS	1029.15	1543.72	2572.86
			8 FPS	1244.98	1867.48	3112.46
			6 FPS	1593.77	2390.66	3984.44
			4 FPS	2017.73	3026.60	5044.33
			2 FPS	3225.20	4837.80	8062.99
			1 FPS	5184.81	7777.22	12962.03
		Enhanced	25 FPS	894.32	1341.48	2235.81
			12 FPS	1545.66	2318.49	3864.15
			8 FPS	1812.39	2718.58	4530.97
			6 FPS	2288.27	3432.40	5720.67
			4 FPS	2864.34	4296.50	7160.84
			2 FPS	4404.30	6606.45	11010.75
			1 FPS	6826.67	10240.00	17066.67
		Normal	25 FPS	1204.71	1807.06	3011.76
			12 FPS	2068.69	3103.03	5171.72
			8FPS	2367.63	3551.45	5919.08
			6 FPS	2989.78	4484.67	7474.45
			4 FPS	3723.64	5585.45	9309.09
			2 FPS	5535.14	8302.70	13837.84
			1 FPS	8533.33	12800.00	21333.33

TV System	Resolution	Quality	Frame Rate	Recording time by HDD (1ch basis)		
				200GB	300GB	500GB
P A L	720*288	Super Fine	25 FPS	264.94	397.41	662.35
			12 FPS	465.98	698.98	1164.96
			7 FPS	650.16	975.24	1625.40
			4 FPS	957.01	1435.51	2392.52
			3 FPS	1230.03	1845.05	3075.08
			2 FPS	1407.56	2111.34	3518.90
			1 FPS	2275.56	3413.33	5688.89
		Fine	25 FPS	327.68	491.52	819.20
			12 FPS	573.67	860.50	1434.17
			7 FPS	7898.21	1183.82	1973.03
			4 FPS	1157.06	1735.59	2892.66
			3 FPS	1484.06	2226.09	3710.14
			2 FPS	1853.39	2780.09	4633.48
			1 FPS	3079.70	4619.55	7699.25
		Enhanced	25 FPS	486.46	729.69	1216.15
			12 FPS	841.07	1261.60	2102.67
			7 FPS	1122.19	1683.29	2805.48
			4 FPS	1600.00	2400.00	4000.00
			3 FPS	2037.81	3056.72	5094.53
			2 FPS	2512.88	3769.33	6282.21
			1 FPS	4015.69	6023.53	10039.22
		Normal	25 FPS	642.01	963.01	1605.02
			12 FPS	1104.04	1656.06	2760.11
			7 FPS	1432.17	2148.25	3580.42
			4 FPS	2048.00	3072.00	5120.00
			3 FPS	2592.41	3888.61	6481.01
			2 FPS	3103.03	4654.55	7757.58
			1 FPS	4876.19	7314.29	12190.48

- Recording hour can be a little bit different according to input size.